

10/585,013

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THE ESTIMATED COST FOR THIS REQUEST IS 709.24 U.S. DOLLARS

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L6 ANSWER 1 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2010:1417529 CAPLUS

DOCUMENT NUMBER: 153:569884

TITLE: Synthesis and characterization of a Ru(II) complex with functionalized phenanthroline ligands having single-double linked anthracenyl and 1-methoxy-1-buten-3-yne moieties

AUTHOR(S): Adeloje, Adewale O.; Ajibade, Peter A.

CORPORATE SOURCE: Department of Chemistry, Faculty of Science and Agriculture, University of Fort Hare, Alice, 5700, S. Afr.

SOURCE: Molecules (2010), 15, 7570-7581

CODEN: MOLEFW; ISSN: 1420-3049

URL: <http://www.mdpi.com/1420-3049/15/11/7570/pdf>

PUBLISHER: Molecular Diversity Preservation International

DOCUMENT TYPE: Journal; (online computer file)

LANGUAGE: English

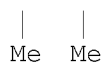
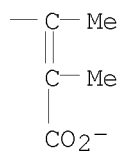
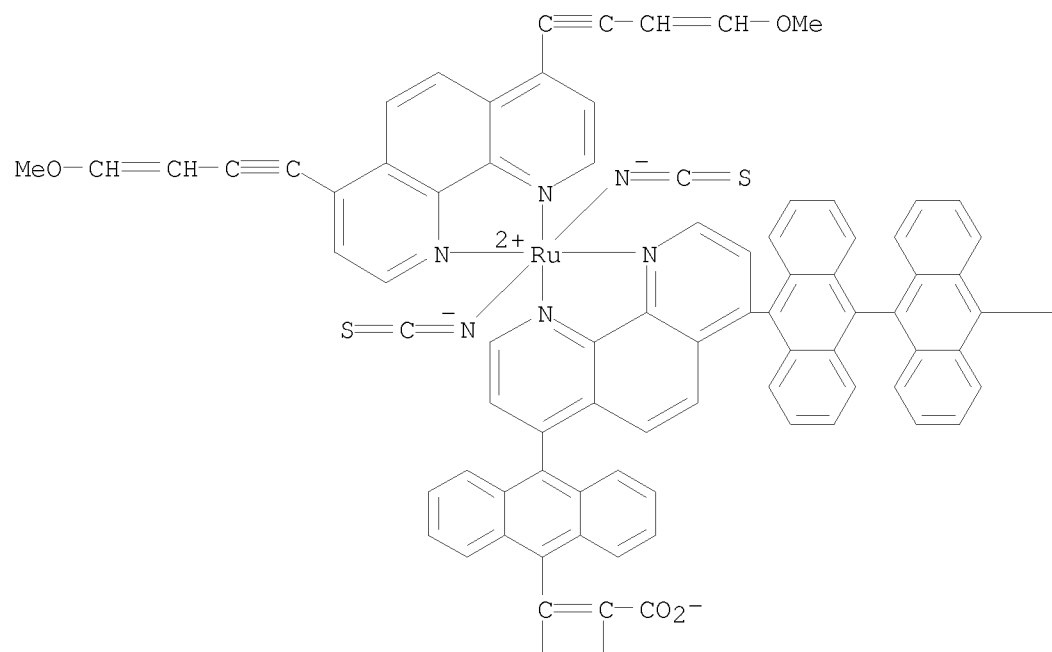
AB Two series of bidentate polypyridine ligands, made of phenanthroline chelating subunits having substituted mono- and di-anthracenyl groups, and 1-methoxy-1-buten-3-yne at the 4 and 7-positions with the corresponding heteroleptic Ru(II) complex were synthesized and characterized. The complex is  $[(Ru(L1)(L2)(NCS)_2)]$ , ( $L1 = 4-(10-(2,3-dimethylacryloyl)anthracen-9-yl)-7-(10-(2,3-dimethylacryloyl)anthracen-9-yl)-1,10-phenanthroline$  and  $L2 = 4,7-bis(1-methoxy-1-buten-3-yne)-1,10-phenanthroline$ ). The Ru(II) complex shows characteristic broad and intense metal-to-ligand charge transfer (MLCT) bands absorption and appreciable photoluminescence spanning the visible region. The ligands and complex were characterized by FTIR,  $^1H$ ,  $^{13}C$  NMR spectroscopy, UV-visible, photoluminescence and elemental anal. The anchoring groups in both ligands have allowed an extended delocalization of acceptor orbital of the metal-to-ligand charge-transfer (MLCT) excited state.

IT 1253184-23-4P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation and luminescence and charge transfer transition of acryloylanthracenylphenanthroline/methoxybutenylphenanthroline and their ruthenium complex)

RN 1253184-23-4 CAPLUS

CN INDEX NAME NOT YET ASSIGNED



RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 2 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2010:1168118 CAPLUS

DOCUMENT NUMBER: 153:544862

TITLE: Synthesis and characterization of a heteroleptic Ru(II) complex of phenanthroline containing oligo-anthracenyl carboxylic acid moieties

AUTHOR(S): Adeloye, Adewale O.; Ajibade, Peter A.

CORPORATE SOURCE: Department of Chemistry, Faculty of Science and Agriculture, University of Fort Hare, Alice, 5700, S. Afr.

SOURCE: International Journal of Molecular Sciences (2010), 11, 3158-3176

CODEN: IJMCFK; ISSN: 1422-0067

URL: <http://www.mdpi.com/1422-0067/11/9/3158/pdf>

PUBLISHER: Molecular Diversity Preservation International

DOCUMENT TYPE: Journal; (online computer file)

LANGUAGE: English

AB In an effort to develop new ruthenium(II) complexes, this work describes the design, synthesis and characterization of a ruthenium(II) functionalized phenanthroline complex with extended  $\pi$ -conjugation. The ligand were L1 [1,10-phenanthroline-4,7-diylbis(2,3-dimethylacrylic acid)], synthesized by a direct aromatic substitution reaction, and L2 [1,10-phenanthroline-4,7-diylbis(trianthracenyl-2,3-dimethylacrylic acid)], which was synthesized by the dehalogenation of halogenated aromatic compds. using a zero-valent palladium cross-catalyzed reaction in the absence of magnesium-diene complexes and/or cyclooctadienyl nickel(0) catalysts to generate a new carbon-carbon bond polymerized hydrocarbon units. The ruthenium complex [RuL1L2(NCS)2] showed improved photophys. properties (red-shifted metal-to-ligand charge-transfer transition absorptions and enhanced molar extinction coeffs.), luminescence and interesting electrochem. properties. Cyclic and square wave voltammetry revealed five major redox processes. The number of electron(s) transferred by the ruthenium complex was determined by chronocoulometry in each case. The results show that processes I, II and III are multi-electron transfer reactions while processes IV and V involved one-electron transfer reaction. The photophys. property of the complex makes it a promising candidate in the design of chemosensors and photosensitizers, while its redox-active nature makes the complex a potential mediator of electron transfer in photochem. processes.

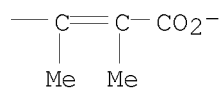
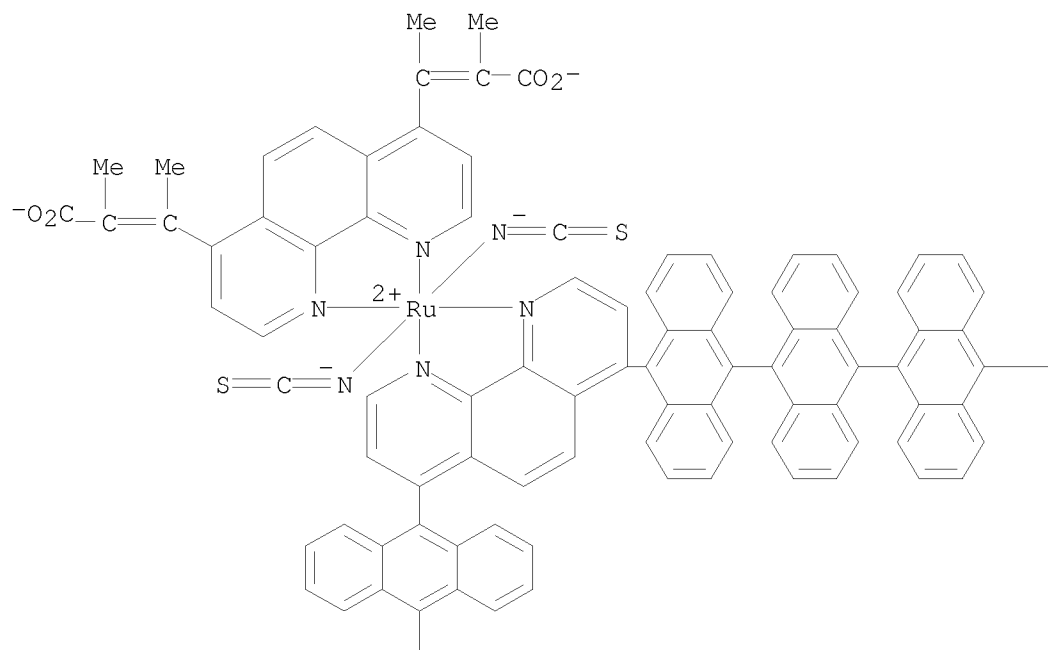
IT 1251836-75-5P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

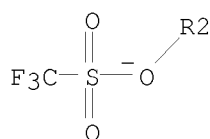
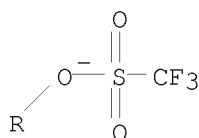
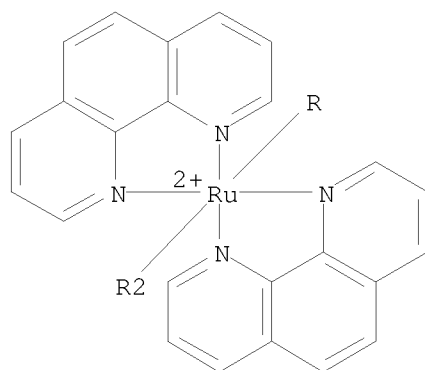
(electrochem. redox; synthesis and electrochem. redox and luminescence of heteroleptic ruthenium(II) isothiocyanate complex of phenanthrolines containing oligo-anthracenyl carboxylic acid moieties)

RN 1251836-75-5 CAPLUS

CN INDEX NAME NOT YET ASSIGNED







REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 4 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2009:1225538 CAPLUS

DOCUMENT NUMBER: 152:39523

TITLE: Acid-, Water- and High-Temperature-Stable Ruthenium Complexes for the Total Catalytic Deoxygenation of Glycerol to Propane

AUTHOR(S): Taher, Deeb; Thibault, Michelle E.; Di Mondo, Domenico; Jennings, Michael; Schlaf, Marcel

CORPORATE SOURCE: Chemistry Department, Tafila Technical University, Tafila, 66110, Jordan

SOURCE: Chemistry--A European Journal (2009), 15(39), 10132-10143, S10132/1-S10132/26

CODEN: CEUJED; ISSN: 0947-6539

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 152:39523

AB The Ru complexes [Ru(H<sub>2</sub>O)<sub>2</sub>(bipy)<sub>2</sub>](OTf)<sub>2</sub>, [cis-Ru(6,6'-Cl<sub>2</sub>-bipy)<sub>2</sub>(OH<sub>2</sub>)<sub>2</sub>](OTf)<sub>2</sub>, [Ru(H<sub>2</sub>O)<sub>2</sub>(phen)<sub>2</sub>](OTf)<sub>2</sub>, [Ru(H<sub>2</sub>O)<sub>3</sub>(2,2':6',2''-terpy)](OTf)<sub>2</sub>, and [Ru(H<sub>2</sub>O)<sub>3</sub>(Phterpy)](OTf)<sub>2</sub> (bipy=2,2'-bipyridine; OTf=triflate; phen=phenanthroline; terpy=terpyridine; Phterpy = 4'-phenyl-2,2':6',2''-terpyridine), are water- and

acid-stable catalysts for hydrogenation of aldehydes and ketones in sulfolane solution. In the presence of triflic acid as dehydration co-catalyst, direct conversion of 1,2-hexanediol to n-hexanol and hexane takes place. The terpyridine complexes are stable and active as catalysts at  $\geq 250^\circ$  and in either aqueous sulfolane solution or pure water convert glycerol into n-propanol and ultimately propane as the final reaction product in quant. yield. For the terpy complexes, the active moiety is a carbonyl species  $[(4'\text{-R-}2,2':6',2''\text{-terpy})\text{Ru}(\text{CO})(\text{H}_2\text{O})_2](\text{OTf})_2$  ( $\text{R}=\text{H}, \text{Ph}$ ) formed by the decarbonylation of aldehydes (hexanal for 1,2-hexanediol and 3-hydroxypropanal for glycerol) generated in the reaction mixture through acid-catalyzed dehydration. The structure of the dimeric complex  $\{[(4'\text{-phenyl-}2,2':6',2''\text{-terpy})\text{Ru}(\text{CO})]_2(\mu\text{-OCH}_3)_2\}(\text{OTf})_2$  was determined by single crystal x-ray crystallog. (Space group  $P1$  ( $a = 8.2532(17)$ ;  $b = 12.858(3)$ ;  $c = 14.363(3)$  Å;  $\alpha = 64.38(3)$ ;  $\beta = 77.26(3)$ ;  $\gamma = 87.12(3)^\circ$ ,  $R = 4.36\%$ )).

IT 1198347-97-5P

RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(crystal structure and stability of prepared Ru-aqua complexes and use in deoxygenation of glycerol to propane and hydrogenation of aldehydes and ketones)

RN 1198347-97-5 CAPLUS

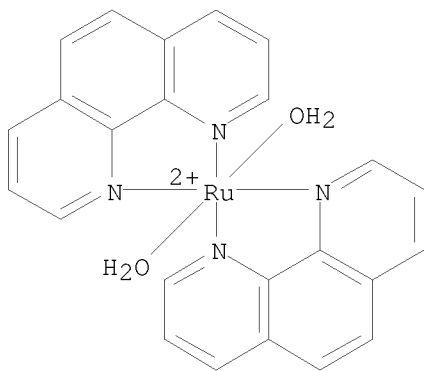
CN Ruthenium(2+), diaquabis(1,10-phenanthroline- $\kappa\text{N}1, \kappa\text{N}10$ )-, (OC-6-22)-, 1,1,1-trifluoromethanesulfonate (1:2) (CA INDEX NAME)

CM 1

CRN 47668-18-8

CMF C24 H20 N4 O2 Ru

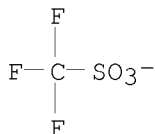
CCI CCS



CM 2

CRN 37181-39-8

CMF C F3 O3 S



OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD  
(2 CITINGS)  
REFERENCE COUNT: 64 THERE ARE 64 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 5 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2009:789340 CAPLUS

DOCUMENT NUMBER: 151:289447

TITLE: Alternative Solid-Phase Strategies for the Efficient  
Labeling of Peptides with  
(Bathophenanthroline)ruthenium(II) Complexes

AUTHOR(S): Kramer, Rolf A.; Bannwarth, Willi

CORPORATE SOURCE: Institut fuer Organische Chemie und Biochemie,  
Albert-Ludwigs-Universitaet Freiburg, Freiburg,  
D-79104, Germany

SOURCE: Helvetica Chimica Acta (2009), 92(6), 1046-1055  
CODEN: HCACAV; ISSN: 0018-019X

PUBLISHER: Verlag Helvetica Chimica Acta

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 151:289447

AB In order to increase the flexibility for the insertion of highly sensitive  
and robust RuII(bathophenanthroline) (bathophenanthroline =  
4,7-diphenyl-1,10-phenanthroline) complexes into peptides, the authors  
have evaluated three different solid-phase strategies. Amongst these,  
insertion of the Ru-complex-modified lysine building block 9 turned out to  
be the method of choice.

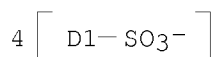
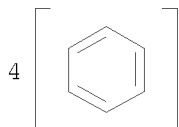
IT 1184173-02-1

RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of ruthenium-labeled peptides using  
(bathophenanthroline)ruthenium(II) complex as a reactant in solid-phase  
peptide synthesis)

RN 1184173-02-1 CAPLUS

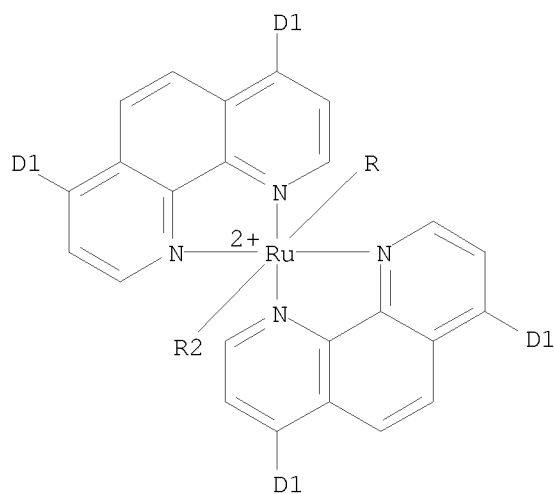
CN Ruthenate(4-), bis[[[(1,10-phenanthroline-4,7-diyl-  
 $\kappa$ N1, $\kappa$ N10)bis[benzenesulfonato]](2-)]bis(2,2,2-  
trifluoromethanesulfonato- $\kappa$ O)-, sodium (1:4) (CA INDEX NAME)

PAGE 1-A

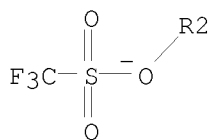
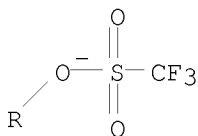




PAGE 2-A



PAGE 3-A

● 4 Na<sup>+</sup>

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)  
 REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 6 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 2009:769909 CAPLUS  
 DOCUMENT NUMBER: 151:105034  
 TITLE: Novel ruthenium complex photo-sensitizers for dye sensitized solar cells  
 INVENTOR(S): Icli, Siddik; Zafer, Ceylan; Ocakoglu, Kasim; Karapire, Cana; Yoldas, Buelent; Teoman, Yildirim; Kuban, Baha  
 PATENT ASSIGNEE(S): Turkiye Sise ve Cam Fabrikalari A.S., Turk.  
 SOURCE: PCT Int. Appl., 30pp.

CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2009078823	A1	20090625	WO 2007-TR149	20071217
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW			
RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
EP 2231685	A1	20100929	EP 2007-861195	20071217
R:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, RS			

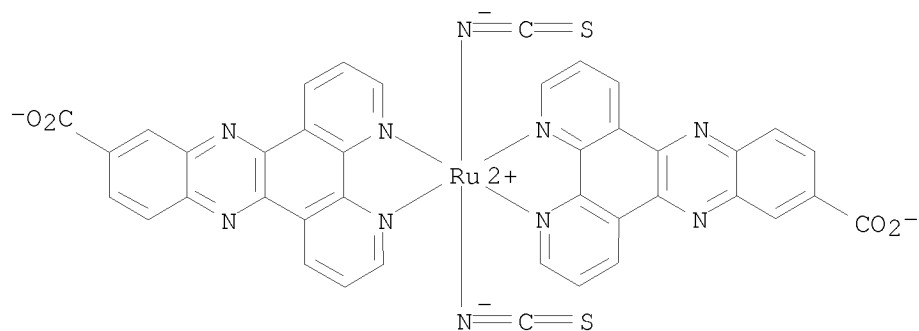
PRIORITY APPLN. INFO.: WO 2007-TR149 W 20071217  
 OTHER SOURCE(S): CASREACT 151:105034

AB Novel Ru complex photo-sensitizers and their use in dye sensitized solar cells, comprising nanocryst. metal oxide film sensitized with these dyes, are presented.

IT 1166392-54-6P  
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (novel ruthenium complex photo-sensitizers for dye sensitized solar cells)

RN 1166392-54-6 CAPLUS

CN Ruthenate(2-), bis(dipyrido[3,2-a:2',3'-c]phenazine-11-carboxylato- $\kappa$ N4, $\kappa$ N5)bis(thiocyanato- $\kappa$ N)-, hydrogen (1:2), (OC-6-21)-  
 (CA INDEX NAME)



●2 H<sup>+</sup>

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS

## RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 7 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2008:40768 CAPLUS

DOCUMENT NUMBER: 148:317595

TITLE: Fe(II), Ru(II) and Re(I) complexes of endotopic, sterically non-hindering, U-shaped 8,8'-disubstituted-3,3'-biisoquinoline ligands: syntheses and spectroscopic properties

AUTHOR(S): Ventura, Barbara; Barigelletti, Francesco; Durola, Fabien; Flamigni, Lucia; Sauvage, Jean-Pierre; Wenger, Oliver S.

CORPORATE SOURCE: Istituto per la Sintesi Organica e la Fotoreattività (ISOF), Consiglio Nazionale delle Ricerche (CNR), Bologna, 40129, Italy

SOURCE: Dalton Transactions (2008), (4), 491-498

CODEN: DTARAF; ISSN: 1477-9226

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 148:317595

AB The redox behavior, optical-absorption spectra and emission properties of U-shaped and elongated disubstituted biisoquinoline ligands and of derived octahedral Fe(II), Ru(II), and Re(I) complexes are reported. The ligands are 8,8'-dichloro-3,3'-biisoquinoline (1), 8,8'-dianisyl-3,3'-biisoquinoline (2), and 8,8'-di(phenylanisyl)-3,3'-biisoquinoline (3), and the complexes are [Fe(2)3]2+, [Fe(3)3]2+, [Ru(1)(phen)2]2+, [Ru(2)3]2+, [Ru(3)3]2+, [Re(2)(py)(CO)3]+, and [Re(3)(py)(CO)3]+. For the ligands, the optical properties as observed in CH2Cl2 are in line with expectations based on the predominant  $1\pi\pi^*$  nature of the involved excited states, with contributions at lower energies from  $1n\pi^*$  and 1ILCT (intraligand charge transfer) transitions. For all of the Fe(ii), Ru(II), and Re(I) complexes, studied in MeCN, the transitions associated with the lowest-energy absorption band are of 1MLCT (metal-to-ligand charge transfer) nature. The emission properties, as observed at room temperature and at 77 K, can be described as follows: (I) the Fe(II) complexes do not emit, either at room temperature or at 77 K; (II) the room-temperature emission of the Ru(ii) complexes

( $\phi_{em} > 10^{-3}$ ,  $\tau$  in the  $\mu s$  range) is of mixed 3MLCT/3LC character (and similarly at 77 K); and (iii) the room-temperature emission of the Re(i) complexes ( $\phi_{em} \approx 3 \times 10^{-3}$ ,  $\tau < 1$  ns) is of 3MLCT character and becomes of 3LC (ligand-centered) character ( $\tau$  in the ms time scale) at 77 K. The interplay of the involved excited states in determining the luminescence output was examined.

IT 1009608-72-3

RL: RCT (Reactant); RACT (Reactant or reagent)

(Fe(II), Ru(II) and Re(I) complexes of endotopic, sterically non-hindering, U-shaped 8,8'-disubstituted-3,3'-biisoquinoline ligands: syntheses and spectroscopic properties)

RN 1009608-72-3 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline- $\kappa N1, \kappa N10$ )-, hexafluorophosphate(1-) (1:2) (CA INDEX NAME)

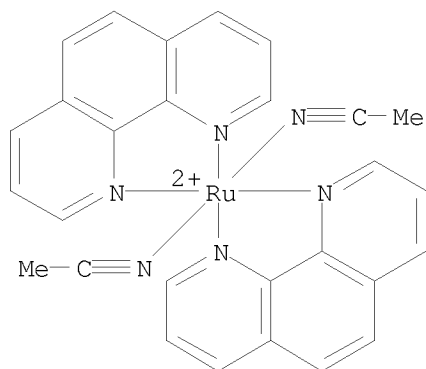
CM 1

CRN 151284-48-9

CMF C28 H22 N6 Ru

CCI CCS

10/585,013

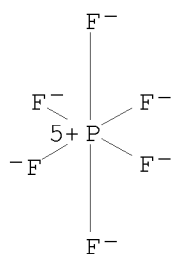


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 8 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2007:891014 CAPLUS

DOCUMENT NUMBER: 149:389868

TITLE: Synthesis, characterization and sensitization properties of two novel mono and bis carboxyl-dipyrido-phenazine ruthenium(II) charge transfer complexes

AUTHOR(S): Mitsopoulou, Christiana A.; Veroni, Irene; Philippopoulos, Athanassios I.; Falaras, Polycarpos

CORPORATE SOURCE: Inorganic Chemistry Laboratory, Department of Chemistry, National and Kapodistrian University of Athens, Zografou, 15771, Greece

SOURCE: Journal of Photochemistry and Photobiology, A: Chemistry (2007), 191(1), 6-12  
CODEN: JPPCEJ; ISSN: 1010-6030

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Two novel heteroleptic ruthenium complexes of the type  $\text{cis-[Ru(dppz-COOH)}_2\text{(NCS)}_2\text{]}$  (1) and  $\text{cis-[Ru(dppz-COOH)(phen)(NCS)}_2\text{]}$  (2),

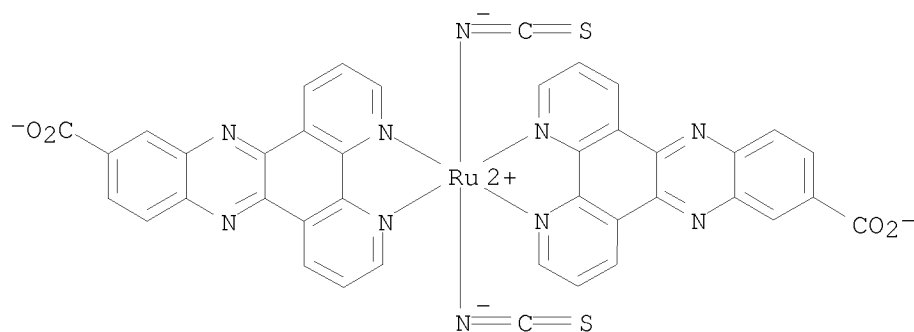
where dppz-COOH = 11-carboxyl-dipyrido[3,2- $\alpha$ :2',3'-c]phenazine and phen = 1,10-phenanthroline, were synthesized and fully characterized by anal. and spectroscopic techniques. The complexes showed a broad and intense metal-to-ligand charge transfer (MLCT) transition band in the visible region, which is emissive both in MeOH at room temperature and in a MeOH-EtOH glass (77 K). Both complexes 1 and 2 were anchored to nanocryst. TiO<sub>2</sub> film electrodes and the resulting photoelectrodes were successfully incorporated in dye-sensitized solar cells (DSSCs) using a solid state redox electrolyte [PEO/TiO<sub>2</sub>/I<sup>-</sup>/I<sub>3</sub><sup>-</sup> (PEO = polyethylene oxide, MW = 2 + 106)]. The photovoltaic performance of the DSSCs was evaluated and compared with the cell prepared with cis-(NBu<sub>4</sub>)<sub>2</sub>[Ru(Hdcbpy)<sub>2</sub>(NCS)<sub>2</sub>], so-called N719 dye (dcbpyH<sub>2</sub> = 4,4'-dicarboxy-2,2'-bipyridine). Although the efficiency of the 2-sensitized solar cell was 10% higher than the 1-sensitized solar cell, neither was as efficient as the N719-sensitized solar cell. The results obtained in the present article are consistent with the photochem. properties of the corresponding Ru(II) dyes.

IT 329328-57-6P 1059562-36-5P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(synthesis, characterization and sensitization properties of mono and bis carboxyl-dipyrido-phenazine ruthenium(II) charge transfer complexes)

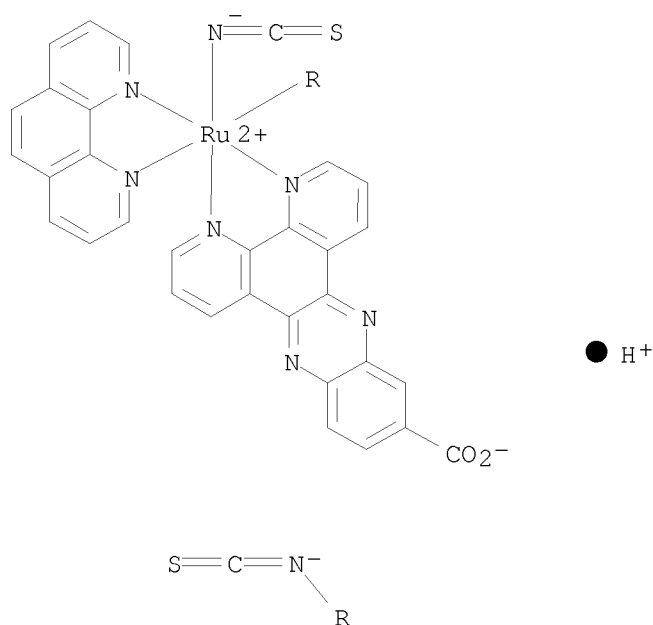
RN 329328-57-6 CAPLUS

CN Ruthenate(2-), bis(dipyrido[3,2- $\alpha$ :2',3'-c]phenazine-11-carboxylato- $\kappa$ N4, $\kappa$ N5)bis(thiocyanato- $\kappa$ N)-, dihydrogen (9CI) (CA INDEX NAME)



RN 1059562-36-5 CAPLUS

CN Ruthenate(1-), (dipyrido[3,2- $\alpha$ :2',3'-c]phenazine-11-carboxylato- $\kappa$ N4, $\kappa$ N5) (1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)bis(thiocyanato- $\kappa$ N)-, hydrogen (1:1) (CA INDEX NAME)



OS.CITING REF COUNT: 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD (7 CITINGS)

REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 9 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2007:809133 CAPLUS

DOCUMENT NUMBER: 149:378858

TITLE: Synthesis of cycloruthenated compounds as potential anticancer agents

AUTHOR(S): Leyva, Lida; Sirlin, Claude; Rubio, Laura; Franco, Cecilia; Le Lagadec, Ronan; Spencer, John; Bischoff, Pierre; Gaiddon, Christian; Loeffler, Jean-Philippe; Pfeffer, Michel

CORPORATE SOURCE: Institut de Chimie de Strasbourg, CNRS - Universite Louis Pasteur, Strasbourg, 67000, Fr.

SOURCE: European Journal of Inorganic Chemistry (2007), (19), 3055-3066

CODEN: EJICFO; ISSN: 1434-1948

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 149:378858

AB A library of 19 cycloruthenated derivs. is constructed by making use of a known cyclometalation reaction. Their structures are modified in a straightforward manner by addition of either mono- or bidentate ligands, such as bipyridine, 1,10-phenanthroline (phen), 1,2-bis(diphenylphosphino)ethane (dppe), dimethylphenylphosphine, PPh<sub>3</sub> and 1,3,5-triaza-7-phosphatricyclo[3.3.1.1]decane (PTA) ligands, to cationic cycloruthenated centers. The antitumor properties of the compds. thus obtained were studied to compare them with recently reported Ru complexes and cisplatin. IC<sub>50</sub> values against mammalian cells (A-172, HCT-116, and RDM-4) are determined for the library compds. and some of them, such as those derived from orthoruthenated phenylpyridine ([Ru(C<sub>6</sub>H<sub>4</sub>-2-C<sub>5</sub>H<sub>4</sub>N)(PMe<sub>2</sub>Ph)(NCMe)<sub>3</sub>]PF<sub>6</sub> (6),

10/585,013

trans-[Ru(C<sub>6</sub>H<sub>4</sub>-2-C<sub>5</sub>H<sub>4</sub>N)(PPh<sub>3</sub>)<sub>2</sub>(NCMe)<sub>2</sub>]PF<sub>6</sub> (9),  
cis-[Ru(C<sub>6</sub>H<sub>4</sub>-2-C<sub>5</sub>H<sub>4</sub>N)(dppe)(NCMe)<sub>2</sub>]PF<sub>6</sub> (10),  
cis-[Ru(C<sub>6</sub>H<sub>4</sub>-2-C<sub>5</sub>H<sub>4</sub>N)(phen)(MeCN)<sub>2</sub>]PF<sub>6</sub> (11)) and a bidentate N,N ligand  
([Ru(C<sub>6</sub>H<sub>4</sub>-2-C<sub>5</sub>H<sub>4</sub>N)(4,4'-diMe-2,2'-bipy)(NCMe)<sub>2</sub>]PF<sub>6</sub> (12,  
4,4'-diMe-2,2'-bipy = 4,4'-dimethyl-2,2'-bipyridine)), display activity of  
the same order of magnitude as cisplatin.

IT 1009608-72-3

RL: PAC (Pharmacological activity); BIOL (Biological study)  
(preparation, structures and antitumor properties of cycloruthenated  
complexes)

RN 1009608-72-3 CAPLUS

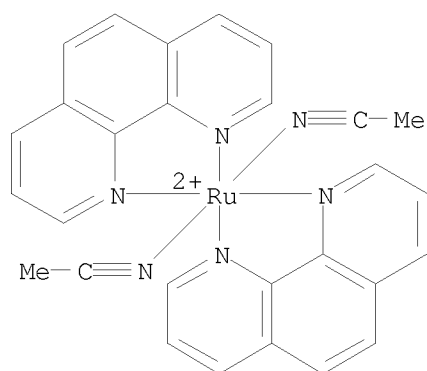
CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-  
κN1,κN10)-, hexafluorophosphate(1-) (1:2) (CA INDEX NAME)

CM 1

CRN 151284-48-9

CMF C28 H22 N6 Ru

CCI CCS

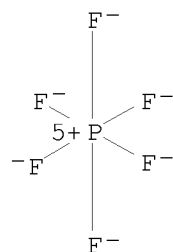


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 17 THERE ARE 17 CAPLUS RECORDS THAT CITE THIS  
RECORD (17 CITINGS)

REFERENCE COUNT: 52 THERE ARE 52 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 10 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2007:544183 CAPLUS

DOCUMENT NUMBER: 147:176911

TITLE: Cis-trans photoisomerization in  
[Ru(DIP)2(MeOH)2][OTf]2: synthesis, NMR, x-ray  
structure of the trans-isomer and photophysical  
propertiesAUTHOR(S): Amouri, Hani; Waern, Jenny B.; Caspar, Regis;  
Barbieri, Andrea; Sabatini, Cristiana; Zanelli,  
Alberto; Barigelletti, FrancescoCORPORATE SOURCE: Laboratoire de Chimie Inorganique et Materiaux  
Moleculaires, UMR CNRS 7071, Universite Pierre et  
Marie Curie-Paris 6, Paris, 75252, Fr.SOURCE: Dalton Transactions (2007), (21), 2179-2186  
CODEN: DTARAF; ISSN: 1477-9226

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 147:176911

AB The first trans-ruthenium complex trans-[Ru(DIP)2(MeOH)2][OTf]2 (1b; DIP = 4,7-diphenyl-1,10-phenanthroline) incorporating a  $\pi$ -extended ligand was prepared via two methods: either photolysis of cis-[Ru(DIP)2(OTf)2] in MeOH-Et2O or via crystallization from MeOH-Et2O in direct sunlight. The x-ray mol. structure of 1b is reported and confirmed the trans geometry of the title compound. The cis-trans isomerization process was monitored by 1H-NMR and showed that 1b reverts back to cis-[Ru(DIP)2(MeOH)2][OTf]2 (1a) in methanol-d4 after 15 h at 55° or several days at room temperature. The absorption spectra recorded in MeOH showed a bathochromic shift of the MLCT band of the trans-isomer 1b relative to that of the cis complex 1a. Interestingly at 77 K the emission spectrum of 1b is red shifted compared to the cis analog 1a. A rational explanation in terms of the energy of the excited states in the cis- and trans-isomers is proposed to explain this behavior.

IT 888939-56-8P 944153-45-1P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP  
(Preparation); RACT (Reactant or reagent)(mol. structure and photophys. and photochem. of trans-ruthenium  
complex with diphenylphenanthroline incorporating  $\pi$ -extended ligand)

RN 888939-56-8 CAPLUS

CN Ruthenium(2+), bis(4,7-diphenyl-1,10-phenanthroline-  
 $\kappa$ N1, $\kappa$ N10)bis(methanol)-, (OC-6-12)-,  
1,1,1-trifluoromethanesulfonate (1:2) (CA INDEX NAME)

CM 1

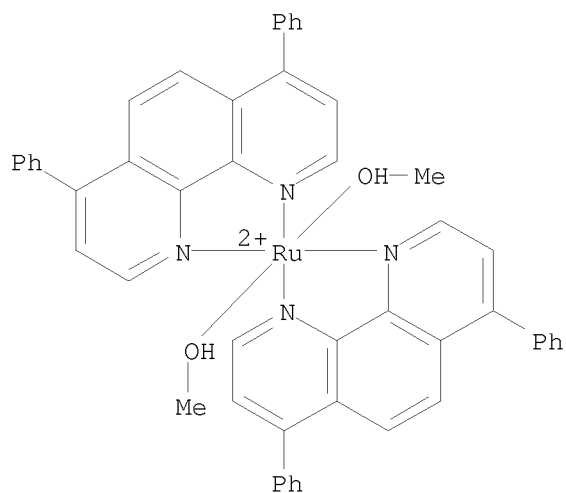
CRN 888939-55-7

CMF C50 H40 N4 O2 Ru

CCI CCS



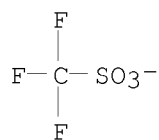
10/585,013



CM 2

CRN 37181-39-8

CMF C F3 O3 S



RN 944153-45-1 CAPLUS

CN Ruthenium(2+), bis(4,7-diphenyl-1,10-phenanthroline-  
κN1,κN10)bis(methanol)-, (OC-6-22)-,  
1,1,1-trifluoromethanesulfonate (1:2) (CA INDEX NAME)

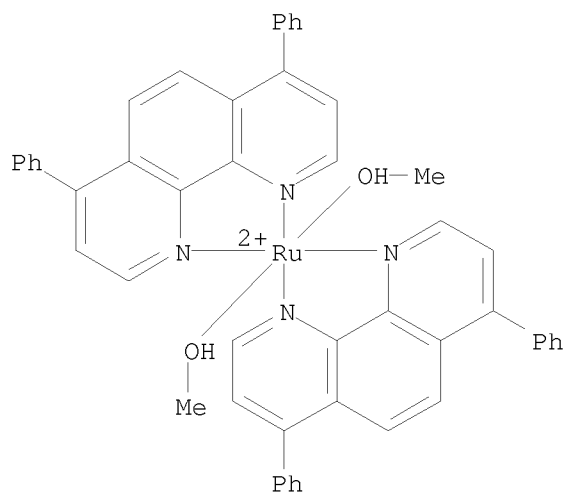
CM 1

CRN 944153-44-0

CMF C50 H40 N4 O2 Ru

CCI CCS

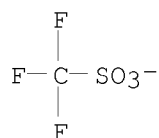
10/585,013



CM 2

CRN 37181-39-8

CMF C F3 O3 S

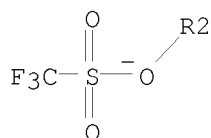
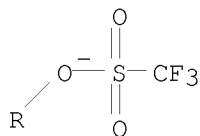
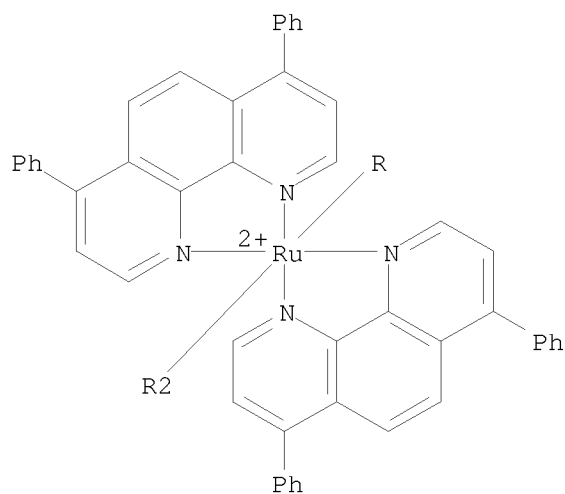


IT 888939-52-4

RL: RCT (Reactant); RACT (Reactant or reagent)  
(precursor; synthesis of trans-ruthenium complex with  
diphenylphenanthroline incorporating  $\pi$ -extended ligand)

RN 888939-52-4 CAPLUS

CN Ruthenium, bis(4,7-diphenyl-1,10-phenanthroline-  
 $\kappa$ N1, $\kappa$ N10)bis(trifluoromethanesulfonato- $\kappa$ O)-, (OC-6-22)-  
(CA INDEX NAME)



OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)  
 REFERENCE COUNT: 83 THERE ARE 83 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 11 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 2007:72306 CAPLUS  
 DOCUMENT NUMBER: 148:111396  
 TITLE: Synthesis of phenanthroline derivative by Suzuki coupling reaction and the use of its ruthenium complex as an optical pH sensor  
 AUTHOR(S): Nam, Hyungoo; Jeong, Miso; Sohn, Ok-Jae; Rhee, Jong Il; Oh, Jonghoon; Kim, Youngjo; Lee, Sunwoo  
 CORPORATE SOURCE: Department of Chemistry, Chonnam National University, Gwangju, 500-757, S. Korea  
 SOURCE: Inorganic Chemistry Communications (2007), 10(2), 195-198  
 CODEN: ICCOFP; ISSN: 1387-7003  
 PUBLISHER: Elsevier B.V.

10/585,013

DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 148:111396

AB A phenanthroline derivative, which has an aniline group, was synthesized by Pd catalyzed Suzuki cross coupling reactions. The aryl phosphine ligand, PPh<sub>3</sub>, showed higher activity than the alkyl phosphines, P(tBu)<sub>3</sub> and PCy<sub>3</sub>, in the Suzuki couplings and provided the coupled product, 4-phenyl-7-(4'-amino-biphenyl-4-yl)-[1,10]phenanthroline (5), with 73% yield. Its Ru complex, bis(4,7-diphenyl-[1,10]phenanthroline){4-phenyl-7-(4'-amino-biphenyl-4-yl)-[1,10]phenanthroline} Ru(II) bis(hexafluorophosphate) (8), was synthesized under mild conditions. This complex 8 showed a linear fluorescence intensity response between pH 3.5 and pH 8.5.

IT 1000311-32-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(Suzuki coupling of (bromophenyl)phenanthroline with dioxaborolanylphenylamine to give (aminobiphenyl)phenanthroline and its ruthenium complex as an optical pH sensor)

RN 1000311-32-9 CAPLUS

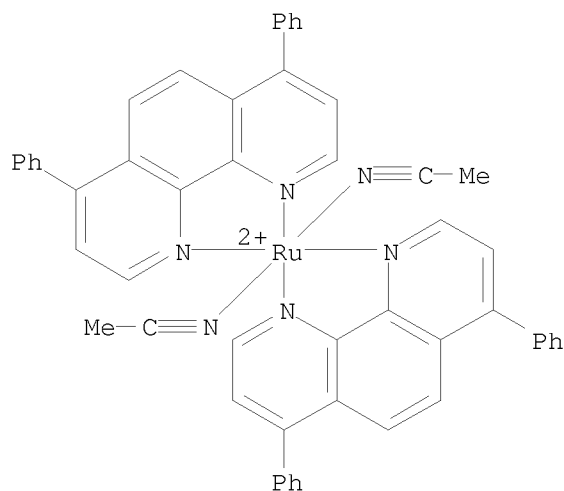
CN Ruthenium(2+), bis(acetonitrile)bis(4,7-diphenyl-1,10-phenanthroline-κN1,κN10)-, (OC-6-22)-, hexafluorophosphate(1-) (1:2) (CA INDEX NAME)

CM 1

CRN 888939-53-5

CMF C52 H38 N6 Ru

CCI CCS



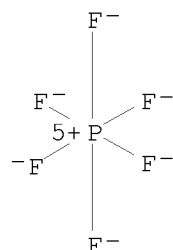
CM 2

CRN 16919-18-9

CMF F6 P

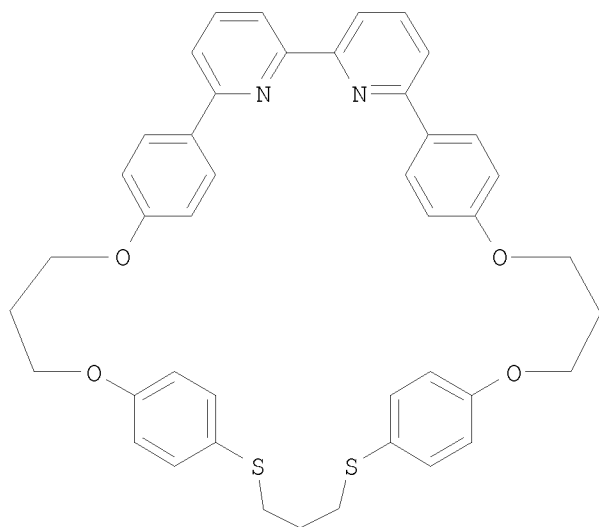
CCI CCS

10/585,013



OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)  
REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 12 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 2007:71786 CAPLUS  
DOCUMENT NUMBER: 146:349957  
TITLE: Ru(phen)2(bis-thioether)2+ complexes: Synthesis and photosubstitution reactions  
AUTHOR(S): Collin, Jean-Paul; Jouvenot, Damien; Koizumi, Masatoshi; Sauvage, Jean-Pierre  
CORPORATE SOURCE: Laboratoire de Chimie Organo-Minérale, UMR 7513 du CNRS, Institut Le Bel, Université Louis Pasteur, Strasbourg, 67000, Fr.  
SOURCE: Inorganica Chimica Acta (2007), 360(3), 923-930  
CODEN: ICHAA3; ISSN: 0020-1693  
PUBLISHER: Elsevier B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 146:349957  
GI



I

AB Three new Ru(II) complexes containing 2 1,10-phenanthroline units and a bis thioether chelate, Ru(L)(phen)2 (L= PhS(CH2)nSPh, n = 2,3) were prepared and characterized. For 2 complexes, the x-ray structure shows a perfect fit

between the 2 phen ligands and the bis-thioethers, with almost perfect C2 symmetry for the Ru(phen)<sub>2</sub> unit and the S-containing ligand. This geometrical complementarity is also reflected by  $\pi$ - $\pi$  stacking between the phen nuclei and the S-borne Ph rings. In relatively harsher preparation conditions a Ru complex composed of 1 phenanthroline and 2 bis-thioethers is formed as a result of a scrambling reaction. When a bis-thioether chelate incorporated in a macrocycle (I) also including a 6,6'-disubstituted-2,2'-bipyridine unit was used, <sup>1</sup>H NMR study shows that an exo S-bonded Ru(II) complex was obtained. In presence of chloride anions a photosubstitution reaction of the bis-thioether chelate takes place selectively and efficiently.

IT 85439-56-1

RL: RCT (Reactant); RACT (Reactant or reagent)

(for preparation of ruthenium(II) bis(phenanthroline) dithioether complexes)

RN 85439-56-1 CAPLUS

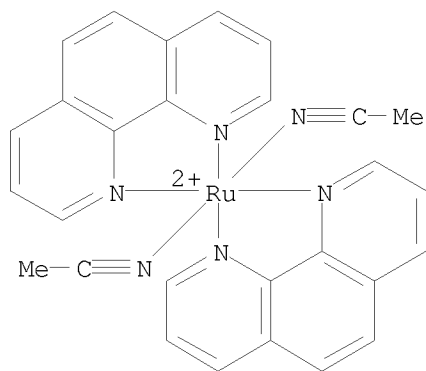
CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-, (OC-6-12)-, hexafluorophosphate(1-) (1:2) (CA INDEX NAME)

CM 1

CRN 85439-55-0

CMF C28 H22 N6 Ru

CCI CCS

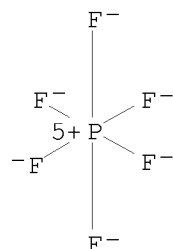


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD  
(4 CITINGS)  
REFERENCE COUNT: 48 THERE ARE 48 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 13 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2006:965081 CAPLUS

DOCUMENT NUMBER: 145:499253

TITLE: Mixed ligand ruthenium(II) complexes of  
5,6-dimethyl-1,10-phenanthroline: The role of ligand  
hydrophobicity on DNA binding of the complexes  
AUTHOR(S): Uma Maheswari, Palanisamy; Rajendiran, Venugopal;  
Palaniandavar, Mallayan; Thomas, Reji; Kulkarni, G. U.  
CORPORATE SOURCE: School of Chemistry, Bharathidasan University,  
Tiruchirappalli, 620 024, India  
SOURCE: Inorganica Chimica Acta (2006), 359(14), 4601-4612  
CODEN: ICHAA3; ISSN: 0020-1693

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 145:499253

AB Mixed ligand Ru(II) complexes of 5,6-dimethyl-1,10-phenanthroline  
(5,6-dmp) as primary ligand and 1,10-phenanthroline (phen),  
2,2'-bipyridine (bpy), pyridine (py) and NH<sub>3</sub> as co-ligands were prepared and  
characterized by x-ray crystallog., elemental anal. and <sup>1</sup>H NMR and  
electronic absorption spectroscopy. The x-ray crystal structure of  
[Ru(phen)<sub>2</sub>(bpy)]Cl<sub>2</sub> reveals a distorted octahedral coordination geometry  
for the RuN<sub>6</sub> coordination sphere. The DNA binding consts. obtained from  
the absorption spectral titrns. decrease in the order, tris(5,6-dmp)Ru(II)  
> bis(5,6-dmp)Ru(II) > mono(5,6-dmp)Ru(II), which is consistent with the  
trend in apparent emission enhancement of the complexes on binding to DNA.  
These observations reveal that the DNA binding affinity of the complexes  
depend upon the number of 5,6-dmp ligands and hence the hydrophobic  
interaction of 5,6-di-Me groups on the DNA surface, which is critical in  
determining the DNA binding affinity and the solvent accessibility of the  
exciplex. Among the bis(5,6-dmp)Ru(II) complexes, those with monodentate  
py cis-[Ru(5,6-dmp)<sub>2</sub>(py)<sub>2</sub>]Cl<sub>2</sub> (4) or cis-[Ru(5,6-dmp)<sub>2</sub>(NH<sub>3</sub>)<sub>2</sub>]Cl<sub>2</sub> (5)  
co-ligands show DNA binding affinities slightly higher than the bpy and  
phen analogs. This reveals that they interact with DNA through the  
co-ligands while both the 5,6-dmp ligands interact with the exterior of  
the DNA surface. All these observations are supported by thermal  
denaturation and viscosity measurements. Two DNA binding modes -  
surface/electrostatic and strong hydrophobic/partial intercalative DNA  
interaction - are suggested for the mixed ligand complexes from  
time-resolved emission measurements. The 5,6-dmp ligands promote  
aggregation of the complexes on the DNA helix as a helical nanotemplate,  
as evidenced by induced CD signals in the UV region. The ionic strength  
variation expts. and competitive DNA binding studies on bis(5,6-dmp)Ru(II)  
complexes reveal that EtBr and the partially intercalated and kinetically  
inert [Ru(phen)<sub>2</sub>(dppz)]<sup>2+</sup> (dppz = dipyrido[3,2-a:2',3'-c]phenazine)  
complexes revert the CD signals induced by exciton coupling of the  
DNA-bound complexes with the free complexes in solution

IT 914458-58-5P

RL: CPS (Chemical process); PEP (Physical, engineering or chemical  
process); PRP (Properties); SPN (Synthetic preparation); PREP  
(Preparation); PROC (Process)

(preparation and binding constant and luminescence in presence/absence of

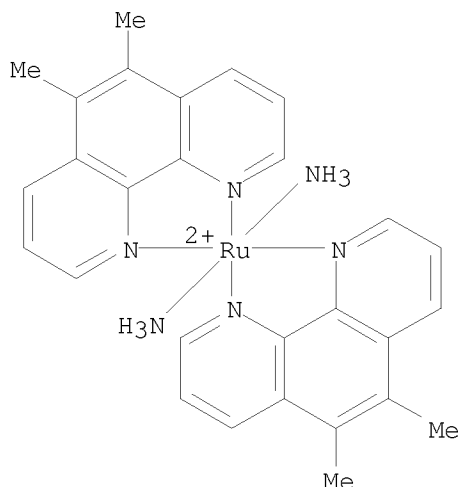
DNA

involving intercalation)

RN 914458-58-5 CAPLUS

10/585,013

CN Ruthenium(2+), diamminebis(5,6-dimethyl-1,10-phenanthroline-  
κN1,κN10)-, dichloride, (OC-6-21)- (9CI) (CA INDEX NAME)



● 2 Cl<sup>-</sup>

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
(1 CITINGS)  
REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 14 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2006:935308 CAPLUS

DOCUMENT NUMBER: 147:166125

TITLE: Ruthenium catalyzed selective oxidation of aryl  
thiophenes using hydrogen peroxide

AUTHOR(S): Landaeta, Vanessa R.; Gonsalvi, Luca; Peruzzini,  
Maurizio

CORPORATE SOURCE: Consiglio Nazionale delle Ricerche, Istituto di  
Chimica dei Composti Organometallici (ICCOM-CNR),  
Sesto Fiorentino (FI), 50019, Italy

SOURCE: Journal of Molecular Catalysis A: Chemical (2006),  
257(1-2), 112-117  
CODEN: JMCCF2; ISSN: 1381-1169

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 147:166125

AB Highly selective catalytic oxidns. of (sterically hindered) aryl  
thiophenes using stoichiometric amts. of hydrogen peroxide (35% in water)  
and cis-Ru(II) bis(substituted phenanthroline) complexes (as low as 0.1%)  
were carried out in acetonitrile at 75°C, affording the  
corresponding sulfones in high yields and selectivities. The products  
were recovered quant. by simple crystallization from the reaction mixture

IT 133090-94-5

RL: CAT (Catalyst use); USES (Uses)

(preparation of cationic cis- and trans-  
bis(aqua)bis(phenanthroline)ruthenium bis(hexafluorophosphate) and  
study of their applicability as catalysts for oxidation of benzothiophene

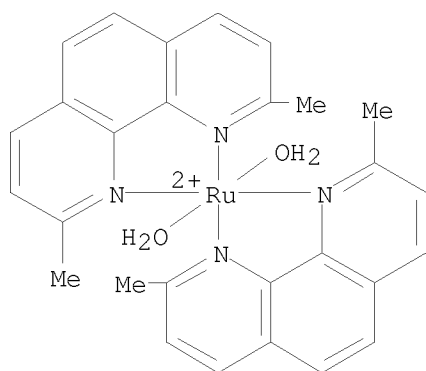


10/585,013

derivs. to benzothiophene dioxides with hydrogen peroxide)  
RN 133090-94-5 CAPLUS  
CN Ruthenium(2+), diaquabis(2,9-dimethyl-1,10-phenanthroline-  
κN1,κN10)-, (OC-6-22)-, hexafluorophosphate(1-) (1:2) (CA  
INDEX NAME)

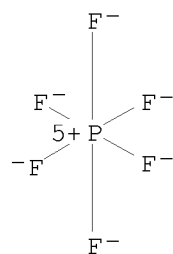
CM 1

CRN 99547-25-8  
CMF C28 H28 N4 O2 Ru  
CCI CCS



CM 2

CRN 16919-18-9  
CMF F6 P  
CCI CCS



OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD  
(4 CITINGS)  
REFERENCE COUNT: 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 15 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 2006:351459 CAPLUS  
DOCUMENT NUMBER: 145:39406  
TITLE: A New Family of Mono- and Dicarboxylic Ruthenium  
Complexes [Ru(DIP)2(L2)]2+ (DIP =  
4,7-diphenyl-1,10-phenanthroline): Synthesis, Solution  
Behavior, and X-ray Molecular Structure of  
trans-[Ru(DIP)2(MeOH)2][OTf]2

AUTHOR(S): Caspar, Regis; Cordier, Christine; Waern, Jenny B.; Guyard-Duhayon, Carine; Gruselle, Michel; Le Floch, Pascal; Amouri, Hani

CORPORATE SOURCE: Laboratoire de Chimie Inorganique et Materiaux Moleculaires, UMR CNRS 7071, Universite Pierre et Marie Curie Paris VI, Paris, 75252, Fr.

SOURCE: Inorganic Chemistry (2006), 45(10), 4071-4078  
CODEN: INOCAJ; ISSN: 0020-1669

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

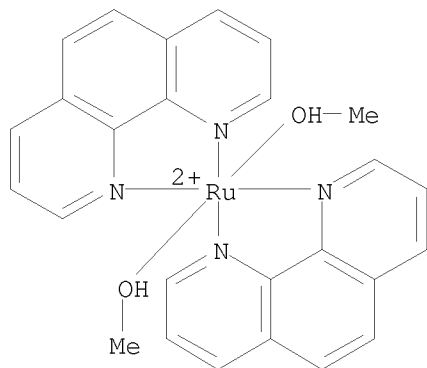
OTHER SOURCE(S): CASREACT 145:39406

AB A new family of Ru complexes  $[\text{Ru}(\text{DIP})_2(\text{L}_2)]^{2+}$ , where DIP = 4,7-diphenyl-1,10-phenanthroline, a bidentate ligand with an extended aromatic system, was prepared and fully characterized. When L is a monodentate ligand, the following complexes were obtained: L =  $\text{CF}_3\text{SO}_3^-$  (2), MeCN (3), and MeOH (4). When L<sub>2</sub> is a bidentate ligand,  $[\text{Ru}(\text{DIP})_2(\text{Hcmbpy})][\text{Cl}]_2$  (5) and  $[\text{Ru}(\text{DIP})_2(\text{H}_2\text{dcbpy})][\text{Cl}]_2$  (6) were prepared (Hcmbpy = 4-carboxy-4'-methyl-2,2'-bipyridine, H<sub>2</sub>dcbpy = 4,4'-dicarboxy-2,2'-bipyridine).  $[\text{Ru}(\text{DIP})_2(\text{MeOH})_2][\text{OTf}]_2$  (4) displayed a trans configuration of the DIP ligands, which is rare for octahedral complexes featuring DIP bidentate ligands. DFT calcns. carried out on 4 showed that the cis isomer is more stable by 12.2 kcal/mol relative to the trans species. The solution behaviors of monocarboxylic complex  $[\text{Ru}(\text{DIP})_2(\text{Hcmbpy})][\text{Cl}]_2$  (5) and dicarboxylic complex  $[\text{Ru}(\text{DIP})_2(\text{H}_2\text{dcbpy})][\text{Cl}]_2$  (6) were studied by <sup>1</sup>H NMR spectroscopy. VT-NMR, concentration dependence, and reaction with NaOD allowed the authors to suggest that aggregation of the cationic species in solution, especially for 6, originates mainly from H bonding interactions.

IT 889131-41-3  
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)  
(mol. structure from DFT calcns. as model for ruthenium phenylphenanthroline methanol complex and isomerization to cis isomer)

RN 889131-41-3 CAPLUS

CN Ruthenium(2+), bis(methanol)bis(1,10-phenanthroline-κN1,κN10)-, (OC-6-12)- (CA INDEX NAME)

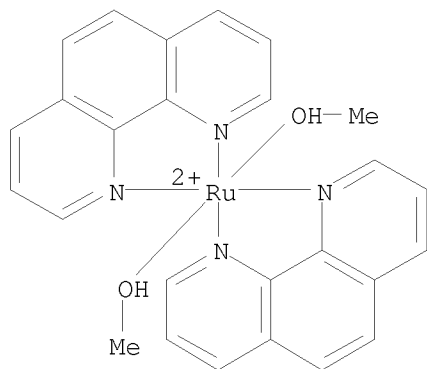


IT 888939-57-9  
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)  
(mol. structure from DFT calcns. as model for ruthenium phenylphenanthroline methanol complex and lack of isomerization to trans isomer)

RN 888939-57-9 CAPLUS

10/585,013

CN Ruthenium(2+), bis(methanol)bis(1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-  
, (OC-6-22)- (CA INDEX NAME)



IT 888939-56-8P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and crystal structure of)

RN 888939-56-8 CAPLUS

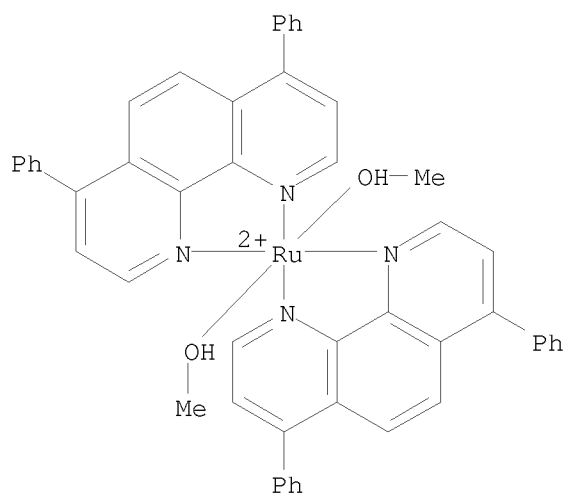
CN Ruthenium(2+), bis(4,7-diphenyl-1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)bis(methanol)-, (OC-6-12)-,  
1,1,1-trifluoromethanesulfonate (1:2) (CA INDEX NAME)

CM 1

CRN 888939-55-7

CMF C50 H40 N4 O2 Ru

CCI CCS

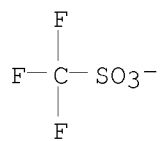


CM 2

CRN 37181-39-8

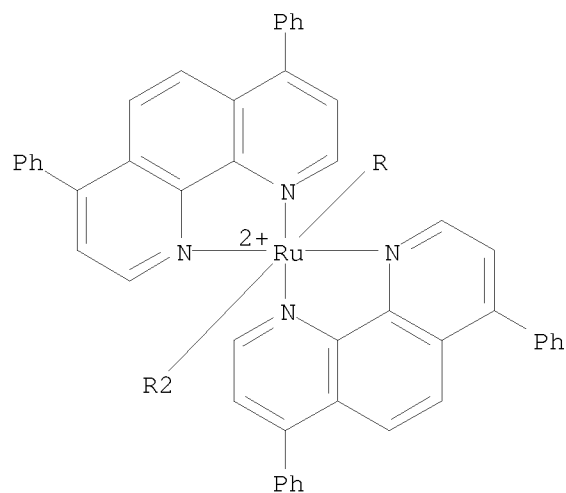
CMF C F3 O3 S

10/585,013

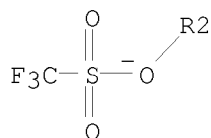
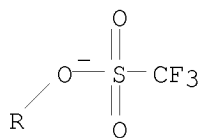


IT 888939-52-4P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and substitution reactions with methanol)  
RN 888939-52-4 CAPLUS  
CN Ruthenium, bis(4,7-diphenyl-1,10-phenanthroline-  
 $\kappa\text{N}1, \kappa\text{N}10$ )bis(trifluoromethanesulfonato- $\kappa\text{O}$ )-, (OC-6-22)-  
(CA INDEX NAME)

PAGE 1-A



PAGE 2-A



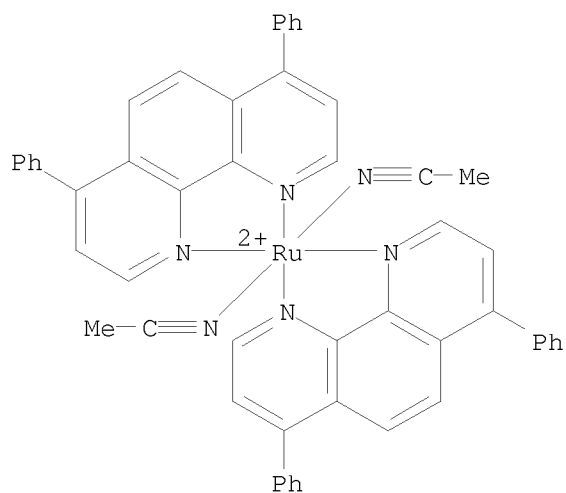
IT 888939-54-6P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

10/585,013

RN 888939-54-6 CAPLUS  
CN Ruthenium(2+), bis(acetonitrile)bis(4,7-diphenyl-1,10-phenanthroline-  
 $\kappa$ N1, $\kappa$ N10)-, (OC-6-22)-, 1,1,1-trifluoromethanesulfonate (1:2)  
(CA INDEX NAME)

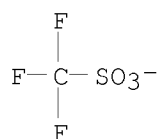
CM 1

CRN 888939-53-5  
CMF C52 H38 N6 Ru  
CCI CCS



CM 2

CRN 37181-39-8  
CMF C F3 O3 S



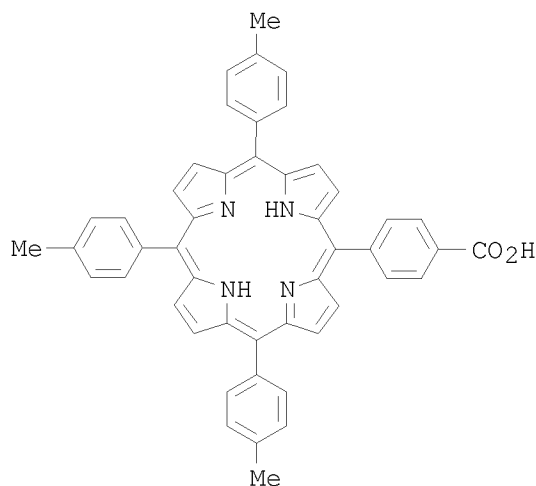
OS.CITING REF COUNT: 11 THERE ARE 11 CAPLUS RECORDS THAT CITE THIS  
RECORD (11 CITINGS)  
REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 16 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 2006:298225 CAPLUS  
DOCUMENT NUMBER: 144:353721  
TITLE: Biochemical fuel cells utilizing photoelectric  
converters  
INVENTOR(S): Tonomura, Tadashi  
PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent

10/585,013

LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006085911	A	20060330	JP 2004-266380	20040914
PRIORITY APPLN. INFO.: GI			JP 2004-266380	20040914



I

AB In the fuel cells, electrons are taken out of hydrocarbon biofuels via (A) compds. generating reductants and electrons by light irradiation and (B) biol. cells oxidizing the biofuels by metabolism and supplying electrons to the reductants on anodes. Preferably, the A having absorption peaks at 300-100 nm, e.g., dyes having porphyrin structures I, are placed on oxide semiconductors via which generated electrons are introduced to external elec. circuits. The biofuels may contain starch, glucose, MeOH, or EtOH. The cathodes may be (1) oxygen electrodes reducing O in air or electrolytes, or (2) hydrogen electrodes reducing proton or water in the electrolytes.

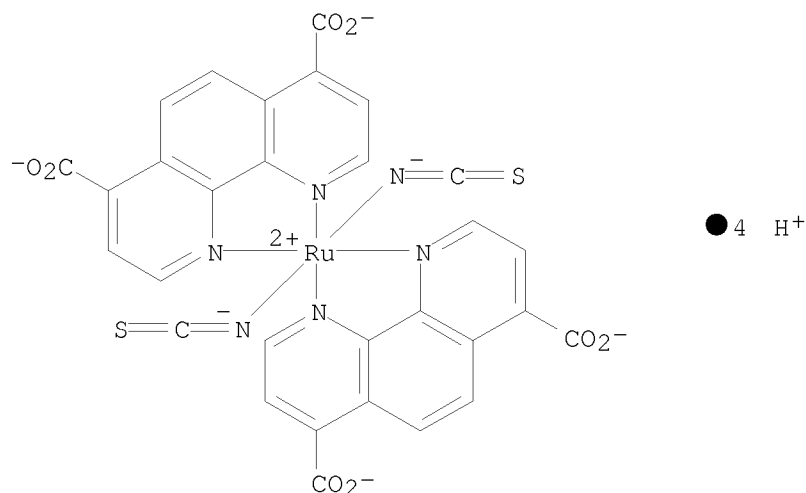
IT 214000-95-0

RL: DEV (Device component use); USES (Uses)

(anodes; biochem. fuel cells with anode reaction utilizing photoelec. conversion dyes and biol. cells oxidizing biofuels by metabolism)

RN 214000-95-0 CAPLUS

CN Ruthenate(4-), bis[1,10-phenanthroline-4,7-dicarboxylato(2-)-  
κN1,κN10]bis(thiocyanato-κN)-, tetrahydrogen, (OC-6-21)-  
(9CI) (CA INDEX NAME)



L6 ANSWER 17 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2006:274367 CAPLUS

DOCUMENT NUMBER: 144:500496

TITLE: New bipyridyl/phenanthroline ruthenium(II) and ruthenium(III) complexes possessing acetate appended thioether. Evidence for oxidative linkage isomerization

AUTHOR(S): Prasad, Rajendra; Kumar, Ajay; Kumar, Rajeev

CORPORATE SOURCE: Department of Chemistry, Indian Institute of Technology Roorkee, Roorkee, 247667, India

SOURCE: Journal of Molecular Structure (2006), 786(1), 68-75  
CODEN: JMOSB4; ISSN: 0022-2860

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 144:500496

AB The acetate bearing dithioether, sodium di(2-carboxymethylsulfanyl)maleonitrile, L1, upon reaction with [RuII(bpy)2Cl2]·2H2O, [RuII(phen)2Cl2]·2H2O, [RuIII(bpy)2Cl2]<sup>+</sup> or [RuIII(phen)2Cl2]<sup>+</sup> in methanol formed complexes of the type [(bpy)2Ru{S2(CH2COO)2C2(CN)2}] (1), [(phen)2Ru{S2(CH2COO)2C2(CN)2}] (2), [(bpy)2Ru{(OOCCH2)2S2C2(CN)2}]<sup>+</sup> (5) and [(phen)2Ru{(OOCCH2)2S2C2(CN)2}]<sup>+</sup> (6), resp. Four other Ru(III) complexes with di(benzylsulfanyl)maleonitrile, L2, [(bpy)2Ru{S2(PhCH2)C2(CN)2}]<sup>3+</sup> (7) and [(phen)2Ru{S2(PhCH2)C2(CN)2}]<sup>3+</sup> (8), and with acetate, [(bpy)2Ru(OOCCH3)2]<sup>+</sup> (9) and [(phen)2Ru(OOCCH3)2]<sup>+</sup> (10) were also synthesized. Cyclic voltammetry of complexes 1 and 2 exhibited quasi-reversible oxidation waves at 1.01 and 1.02 V vs. Ag/AgCl in DMF while the corresponding Ru(III) L1 complexes 5 and 6 exhibited reversible oxidation at E<sub>1/2</sub> = 0.59 and 0.58 V, resp., under identical conditions. This is unlike the voltammetric behavior of the Ru(II) and Ru(III) L2 complexes wherein the complex pairs 3, 7 and 4, 8 exhibited identical voltammograms with single reversible one electron waves at E<sub>1/2</sub> = 0.98 and 0.92 V, resp. under identical conditions. The voltammograms of Ru(II)L2 complexes 3 and 4 also became irreversible in the presence of nearly four molar equivalents of sodium acetate. Hence, the irreversible redox behavior of complexes 1 and 2 has been interpreted in terms of rapid linkage isomerization, i.e. shift in κ<sup>2</sup>-S,S' to κ<sup>2</sup>-O,O' coordination following the Ru(II)/Ru(III) electrode process. The

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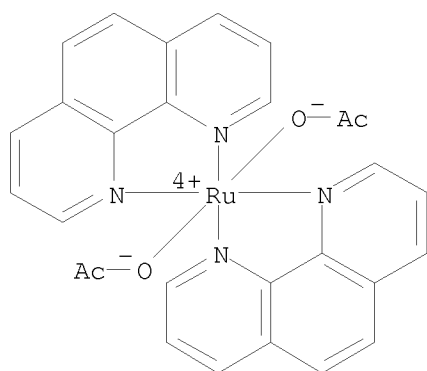
electronic spectra of Ru(III)L1 complexes 5 and 6 resemble closely those of 9 and 10 instead of Ru(III)L2 complexes 7 and 8, further supporting the proposed linkage isomerization. The cationic complexes were obtained as [PF6]<sup>-</sup> salts and all compds. were characterized using anal. and spectral (IR, <sup>1</sup>H NMR, UV-vis and mass) data.

IT 887115-37-9

RL: CPS (Chemical process); FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); FORM (Formation, nonpreparative); PROC (Process)  
(elec. potential of couple containing)

RN 887115-37-9 CAPLUS

CN Ruthenium(2+), bis(acetato-κO)bis(1,10-phenanthroline-κN1,κN10)-, (OC-6-22)- (CA INDEX NAME)



IT 887115-31-3P

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
(preparation and cyclic voltammetry of)

RN 887115-31-3 CAPLUS

CN Ruthenium(1+), bis(acetato-κO)bis(1,10-phenanthroline-κN1,κN10)-, (OC-6-22)-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

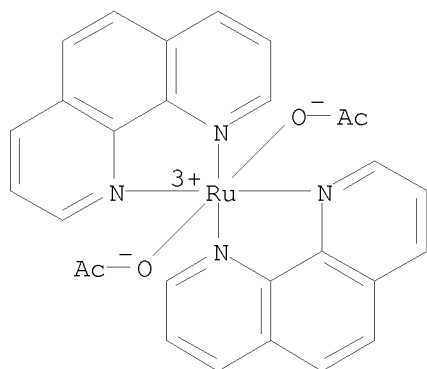
CRN 887115-30-2

CMF C28 H22 N4 O4 Ru

CCI CCS



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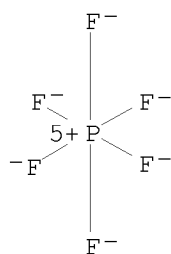


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD (8 CITINGS)  
REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 18 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2005:1037144 CAPLUS

DOCUMENT NUMBER: 143:477620

TITLE: Regioselective Alkene Carbon-Carbon Bond Cleavage to Aldehydes and Chemoselective Alcohol Oxidation of Allylic Alcohols with Hydrogen Peroxide Catalyzed by [cis-Ru(II)(dmp)<sub>2</sub>(H<sub>2</sub>O)<sub>2</sub>]<sup>2+</sup> (dmp = 2,9-dimethylphenanthroline)

AUTHOR(S): Kogan, Vladimir; Quintal, Miriam M.; Neumann, Ronny  
CORPORATE SOURCE: Department of Organic Chemistry, Weizmann Institute of Science, Rehovot, 76100, Israel

SOURCE: Organic Letters (2005), 7(22), 5039-5042  
CODEN: ORLEF7; ISSN: 1523-7060

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 143:477620

AB [Cis-Ru(II)(dmp)<sub>2</sub>(H<sub>2</sub>O)<sub>2</sub>]<sup>2+</sup> (dmp = 2,9-dimethylphenanthroline) was found to be a selective oxidation catalyst using hydrogen peroxide as oxidant. Thus, primary alkenes were very efficiently oxidized via direct carbon-carbon

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bond cleavage to the corresponding aldehydes as an alternative to ozonolysis. Secondary alkenes were much less reactive, leading to regioselective oxidation of substrates such as 4-vinylcyclohexene and 7-methyl-1,6-octadiene at the terminal position. Primary allylic alcs. were chemoselectively oxidized to the corresponding allylic aldehydes, e.g., geraniol to citral.

IT 133090-94-5

RL: CAT (Catalyst use); USES (Uses)

(regioselective preparation of aldehydes and ketones via ruthenium-catalyzed oxidative carbon-carbon bond cleavage of alkenes with hydrogen peroxide)

RN 133090-94-5 CAPLUS

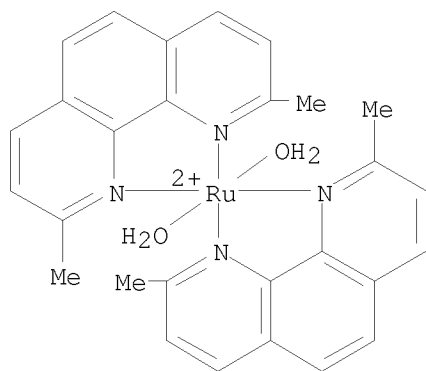
CN Ruthenium(2+), diaquabis(2,9-dimethyl-1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-, (OC-6-22)-, hexafluorophosphate(1-) (1:2) (CA INDEX NAME)

CM 1

CRN 99547-25-8

CMF C28 H28 N4 O2 Ru

CCI CCS

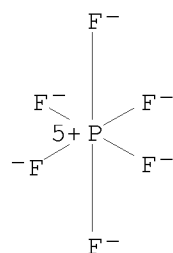


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 13

THERE ARE 13 CAPLUS RECORDS THAT CITE THIS RECORD (13 CITINGS)

REFERENCE COUNT: 36

THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 19 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 2005:963205 CAPLUS  
 DOCUMENT NUMBER: 143:269607  
 TITLE: Biological fuel cells  
 INVENTOR(S): Tonomura, Tadashi  
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

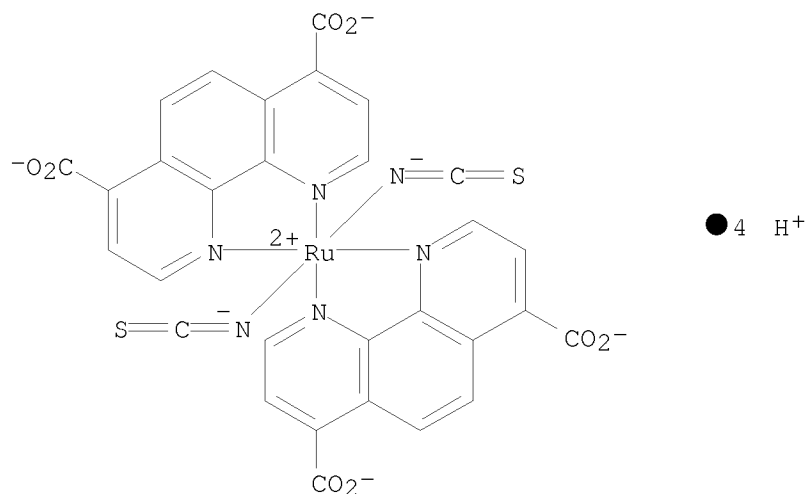
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005235484	A	20050902	JP 2004-41083	20040218
PRIORITY APPLN. INFO.:			JP 2004-41083	20040218

AB The fuel cell comprises a cathode, anode, and an electrolyte, wherein the anode reaction is characterized by oxidation of living-being-derived hydrocarbon fuels (e.g., starch, glucose, alcs.) for generating and carrying electrons to an exterior elec. circuit via metabolism of biol. cells and a compound generating reduced form and electrons upon light irradiation. Preferably, the compound is formed on an oxide semiconductor via which electrons generated from the compound is introduced to the exterior elec. circuit. The compound may be porphyrin derivs. The fuel cell is capable of directly converting the biol. hydrocarbon fuels into energy.

IT 214000-95-0  
 RL: DEV (Device component use); USES (Uses)  
 (anode; in biol. and photochem. fuel cell employing living cell metabolism with oxidation of hydrocarbon fuels)

RN 214000-95-0 CAPLUS

CN Ruthenate(4-), bis[1,10-phenanthroline-4,7-dicarboxylato(2-)- $\kappa$ N1, $\kappa$ N10]bis(thiocyanato- $\kappa$ N)-, tetrahydrogen, (OC-6-21)-(9CI) (CA INDEX NAME)



L6 ANSWER 20 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 2005:494824 CAPLUS

DOCUMENT NUMBER: 143:431457  
 TITLE: A ruthenium(II)-complexed rotaxane whose ring incorporates a 6,6'-diphenyl-2,2'-bipyridine: Synthesis and light-driven motions  
 AUTHOR(S): Collin, Jean-Paul; Jouvenot, Damien; Koizumi, Masatoshi; Sauvage, Jean-Pierre  
 CORPORATE SOURCE: Lab. de Chimie Organo-Minérale, Université Louis Pasteur, Faculté de Chimie, Strasbourg, 67070, Fr.  
 SOURCE: European Journal of Inorganic Chemistry (2005), (10), 1850-1855  
 CODEN: EJICFO; ISSN: 1434-1948  
 PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 143:431457  
 GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB By incorporating a 6,6'-diphenyl-2,2'-bipyridine (dpbipy) and a bis(phenol) A fragment within a ring (I), endo coordination of a Ru<sup>2+</sup> center was performed selectively and almost quant. The threaded system, containing a helical fragment (II), could be fully characterized. When the terminal functions of the rod-shaped helical complex Ru(I)(II) threaded through the macrocycle are phenol rather than methoxy groups the complete rotaxane was prepared by the classical Williamson stoppering reaction in moderate yield. Light-induced motions of the unstoppered system (pseudo-rotaxane) and the real rotaxane were studied. Under visible light irradiation, quant. decoordination of the dpbipy-containing ring is observed, leading to the sep. fragments (ring and helical thread) or to a new rotaxane (uncoordinated ring threaded by the dumbbell).

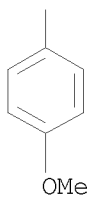
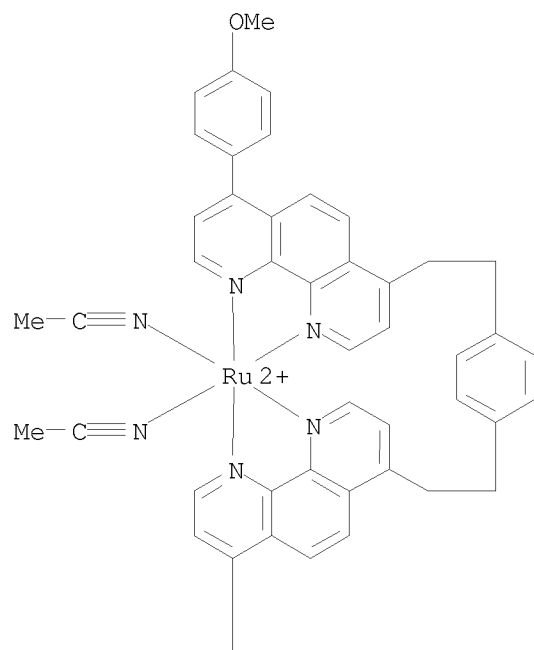
IT 610310-27-5  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (for preparation of ruthenium phenanthroline derivative bipyridinediyl ether macrocycle complex)

RN 610310-27-5 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)[4,4'-(1,4-phenylenedi-2,1-ethanediyl)bis[7-(4-methoxyphenyl)-1,10-phenanthroline-κN1,κN10]]-, (OC-6-33)-, bis[hexafluorophosphate(1-)] (9CI)  
 (CA INDEX NAME)

CM 1

CRN 610310-26-4  
 CMF C52 H44 N6 O2 Ru  
 CCI CCS

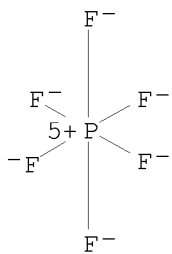


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



IT 610310-35-5

10/585,013

RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation and light induced decomplexation of bipyridinediyl ether  
macrocycle)

RN 610310-35-5 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)[4,4'-[1,4-phenylenebis[2,1-  
ethanediyl(1,10-phenanthroline-7,4-diyl-  
 $\kappa$ N1, $\kappa$ N10)]]bis[phenol]]-, (OC-6-33)-,  
bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

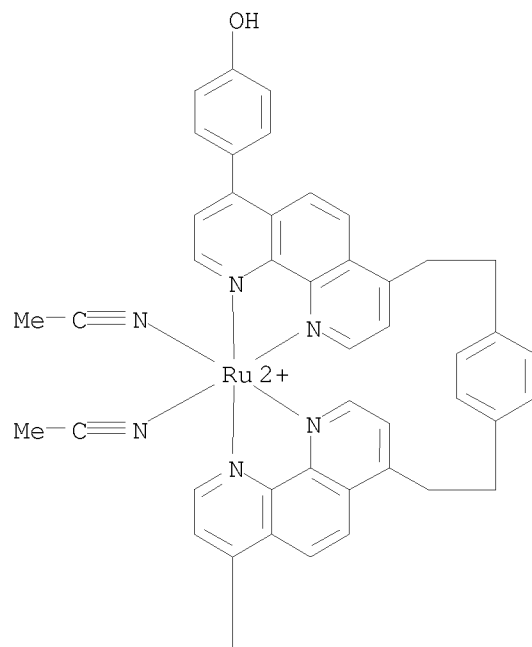
CM 1

CRN 610310-34-4

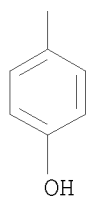
CMF C50 H40 N6 O2 Ru

CCI CCS

PAGE 1-A



PAGE 2-A

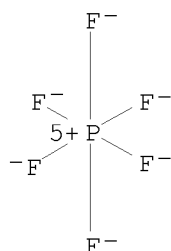


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 18 THERE ARE 18 CAPLUS RECORDS THAT CITE THIS  
RECORD (18 CITINGS)  
REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 21 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 2005:377175 CAPLUS  
DOCUMENT NUMBER: 144:153281  
TITLE: On the structural variations of Ru(II) complexes for  
dye-sensitized solar cells  
AUTHOR(S): Hsu, Ying-Chan; Zheng, Hegen; T'suen Lin, Jiann; Ho,  
Kuo-Chuan  
CORPORATE SOURCE: Department of Chemical Engineering, National Taiwan  
University, Taipei, 106, Taiwan  
SOURCE: Solar Energy Materials & Solar Cells (2005), 87(1-4),  
357-367  
CODEN: SEMCEQ; ISSN: 0927-0248  
PUBLISHER: Elsevier B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Ruthenium(II) complexes with new phenanthrenyl ligand (TAPNB) were  
synthesized and examined. The spectroscopic and electrochem. measurements  
showed that the excited states of those complexes matched the conduction  
band of titanium dioxide. The overall power conversion efficiencies of  
the solar cells used these new complexes as sensitizers for TiO<sub>2</sub> films  
were less than that of N3-sensitized cell. Although the open-circuit  
voltage was similar to that of N3-sensitized cell, the short-circuit  
current was approx. one order lower. Such outcome may be attributed to  
the less amount of dyes adsorbed due to the steric congestion of the  
complex. When NCS ligand was replaced by pyridyl ligand, the energy of  
metal-to-ligand charge transfer (Ru(II)→TAPNB) increased and  
resulted in blue shift of the absorption band. Anchoring of carboxylic  
acid at the surface of TiO<sub>2</sub> slightly lowered the energy of  
Ru(II)→TAPNB charge transfer band. As carboxylic acid anchor was  
replaced by acetyl ester, the weaker interaction between the semiconductor  
and the ligand led to diminishing amount of the complex adsorbed and less  
photocurrent was detected.

IT 873798-53-9P  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PUR  
(Purification or recovery); PYP (Physical process); SPN (Synthetic  
preparation); PREP (Preparation); PROC (Process)

(Ru(TAPNB)<sub>2</sub>(NCS)<sub>2</sub>, adsorbed on TiO<sub>2</sub>; structural variations of Ru(II)  
complexes for dye-sensitized solar cells)

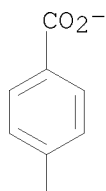
RN 873798-53-9 CAPLUS

CN Ruthenate(2-), bis[4-(1H-imidazo[4,5-f][1,10]phenanthrolin-2-yl-  
κN7,κN8)benzoato]bis(thiocyanato-κN)-, dihydrogen,

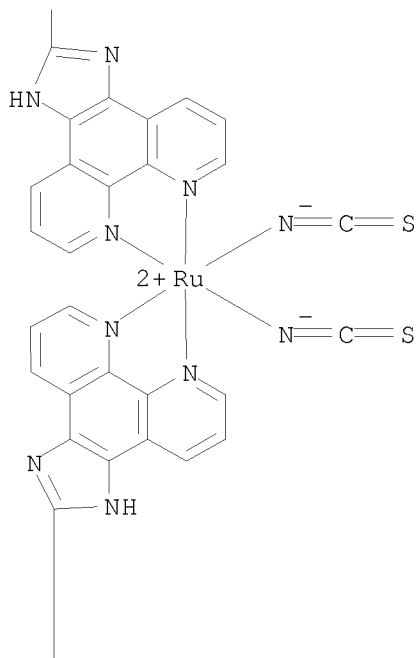
10/585,013

(OC-6-21)- (9CI) (CA INDEX NAME)

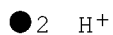
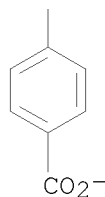
PAGE 1-A



PAGE 2-A







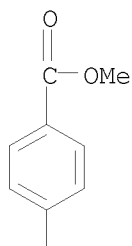
IT 873798-56-2P

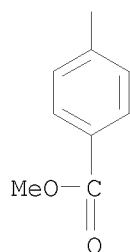
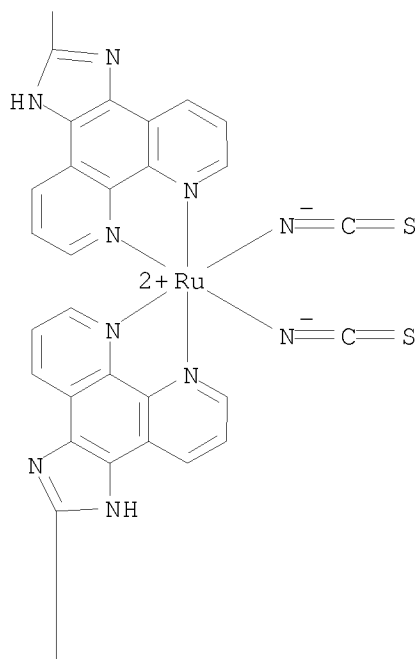
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PUR (Purification or recovery); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

(Ru(TAPNB)<sub>2</sub>(NCS)<sub>2</sub>, di-Me ester, adsorbed on TiO<sub>2</sub>; structural variations of Ru(II) complexes for dye-sensitized solar cells)

RN 873798-56-2 CAPLUS

CN Ruthenium, bis[methyl 4-(1H-imidazo[4,5-f][1,10]phenanthroline-2-yl-κN7,κN8)benzoate]bis(thiocyanato-κN)-, (OC-6-21)- (CA INDEX NAME)





OS.CITING REF COUNT: 11 THERE ARE 11 CAPLUS RECORDS THAT CITE THIS RECORD (11 CITINGS)

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 22 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2005:280449 CAPLUS

DOCUMENT NUMBER: 143:34752

TITLE: Polyamidoamine dendrimers functionalized with electrochemiluminescent polypyridyl Ru(II) complexes

AUTHOR(S): Lee, Do Nam; Kim, Jung Kee; Park, Hee Sang; Jun, Young Moo; Hwang, Ra Young; Lee, Won-Yong; Kim, Byeong Hyo

CORPORATE SOURCE: Department of Chemistry, Kwangwoon University, Seoul, 139-701, S. Korea

SOURCE: Synthetic Metals (2005), 150(1), 93-100  
CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Polyamidoamine (PAMAM) dendrimers that is surface-modified with electrochemiluminescent (ECL) polypyridyl Ru(II) complexes, Dend-4-[Ru(L)<sub>2</sub>(L')]<sub>2</sub> (L = bpy, o-phen; L' = bpy-CO-, mbpy-(CH<sub>2</sub>)<sub>3</sub>CO-), were synthesized through complexation of dendritic polypyridyl ligands to Ru(II) complexes to study the effect of both ligand and dendritic network on the ECL. Their electrochem. redox potentials, photoluminescence (PL) and relative ECL intensities were also studied. The ECL emissions produced by the reaction between electrooxidized Ru<sup>3+</sup> species of PAMAM dendrimers and tripropylamine as a coreactant were measured in a static system with potential cycles between 0.8 and 1.3 V or a flow injection anal. with a potential of +1.3 V and compared with that of [Ru(bpy)<sub>3</sub>](PF<sub>6</sub>)<sub>2</sub>. Dend-4-[Ru(bpy)<sub>2</sub>(mbpy-(CH<sub>2</sub>)<sub>3</sub>CO-)](PF<sub>6</sub>)<sub>8</sub> showed 2-fold intense ECL intensity, greater than that shown by [Ru(bpy)<sub>3</sub>](PF<sub>6</sub>)<sub>2</sub> complex. Both ligand and length of spacer connected to dendrimer affected the ECL intensity.

IT 853077-35-7

RL: RCT (Reactant); RACT (Reactant or reagent)

(polyamidoamine dendrimers functionalized with electrochemiluminescent polypyridyl Ru(II) complexes)

RN 853077-35-7 CAPLUS

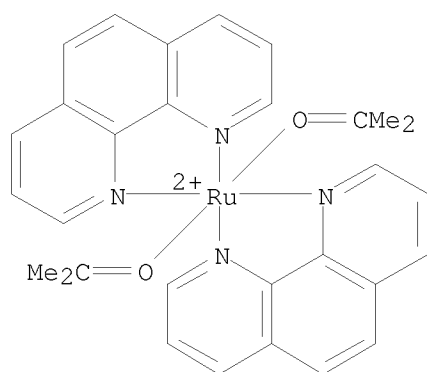
CN Ruthenium(2+), bis(1,10-phenanthroline-κN1,κN10)bis(2-propanone)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 853077-34-6

CMF C30 H28 N4 O2 Ru

CCI CCS

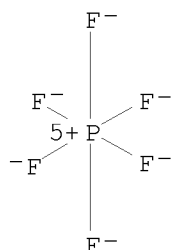


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD (8 CITINGS)  
 REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 23 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2005:114508 CAPLUS

DOCUMENT NUMBER: 143:145094

TITLE: Efficient resolution of *cis*-[Ru(phen)<sub>2</sub>(MeCN)<sub>2</sub>]<sup>2+</sup> using  $\Delta$ -[tris(tetrachlorobenzenediolato)phosphate(V)] as a chiral counter-ion

AUTHOR(S): Gruselle, Michel; Thouvenot, Rene; Caspar, Regis; Boubekur, Kamal; Amouri, Hani; Ivanov, Mikhael; Tonsuaadu, Kaia

CORPORATE SOURCE: Laboratoire de Chimie Inorganique et Materiaux Moleculaires, CNRS, Universite Pierre et Marie Curie, Paris, 75252, Fr.

SOURCE: Mendeleev Communications (2004), (6), 282-283  
 CODEN: MENCEX; ISSN: 0959-9436

PUBLISHER: Russian Academy of Sciences

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The synthesis of *cis*-[Ru(phen)<sub>2</sub>(MeCN)<sub>2</sub>][ $\Delta$ ]-tris(tetrachlorobenzenediolato)phosphate(V)]<sub>2</sub> ([1]-[ $\Delta$ -TRISPHAT]<sub>2</sub>) and the separation of a mixture of the diastereomeric ion pairs by column chromatog. are considered. The x-ray structure of [ $\Delta$ -1][ $\Delta$ -TRISPHAT]<sub>2</sub> is briefly described, as well as the CD curves of [ $\Delta$ -1][ $\Delta$ -TRISPHAT]<sub>2</sub> and [ $\Delta$ -1][ $\Delta$ -TRISPHAT]<sub>2</sub> fractions.

IT 858362-02-4P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation and crystal structure of)

RN 858362-02-4 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-, (OC-6-22- $\Delta$ )-, bis[(OC-6-11- $\Delta$ )-tris[3,4,5,6-tetrachloro-1,2-benzenediolato(2-)- $\kappa$ O, $\kappa$ O']phosphate(1-)], compd. with acetonitrile (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 75-05-8

CMF C2 H3 N

H<sub>3</sub>C-C $\equiv$ N

10/585,013

CM 2

CRN 858361-99-6

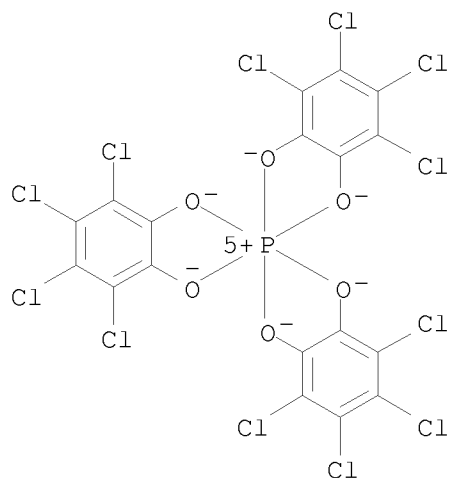
CMF C28 H22 N6 Ru . 2 C18 C112 O6 P

CM 3

CRN 213177-19-6

CMF C18 C112 O6 P

CCI CCS

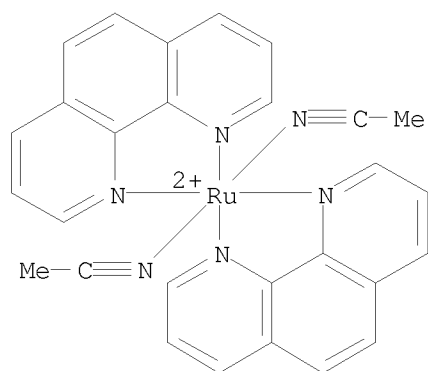


CM 4

CRN 181784-43-0

CMF C28 H22 N6 Ru

CCI CCS



IT 858362-00-2P

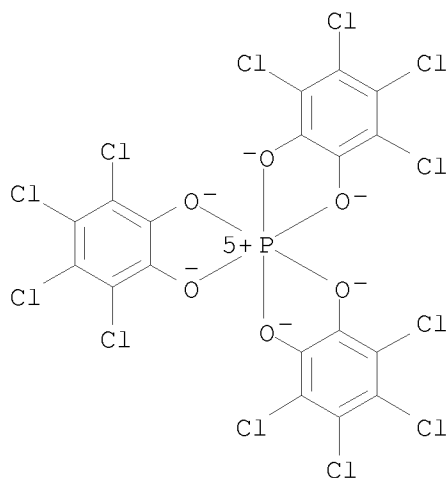
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation from resolution of racemate and CD spectra and crystal  
structure  
of)

10/585,013

RN 858362-00-2 CAPLUS  
CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-  
 $\kappa\text{N}1, \kappa\text{N}10$ )-, (OC-6-22- $\Delta$ )-,  
bis[(OC-6-11- $\Delta$ )-tris[3,4,5,6-tetrachloro-1,2-benzenediolato(2-)-  
 $\kappa\text{O}, \kappa\text{O}'$ ]phosphate(1-)] (9CI) (CA INDEX NAME)

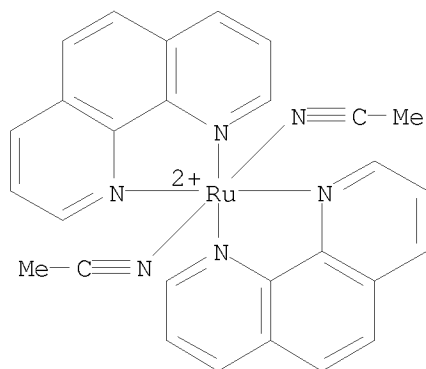
CM 1

CRN 213177-19-6  
CMF C18 C112 O6 P  
CCI CCS



CM 2

CRN 181784-45-2  
CMF C28 H22 N6 Ru  
CCI CCS



IT 858361-99-6P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation from resolution of racemate and CD spectra of)  
RN 858361-99-6 CAPLUS  
CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-

10/585,013

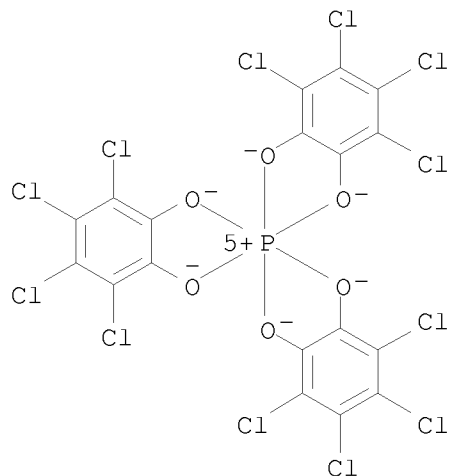
$\kappa N1, \kappa N10$ )-, (OC-6-22- $\Delta$ )-,  
bis[(OC-6-11- $\Delta$ )-tris[3,4,5,6-tetrachloro-1,2-benzenediolato(2-)-  
 $\kappa O, \kappa O'$ ]phosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 213177-19-6

CMF C18 C112 O6 P

CCI CCS

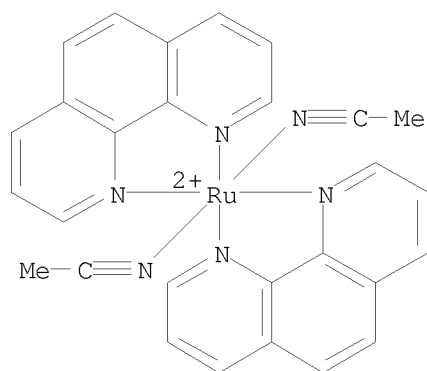


CM 2

CRN 181784-43-0

CMF C28 H22 N6 Ru

CCI CCS



IT 858362-01-3P

RL: PUR (Purification or recovery); PREP (Preparation)  
(resolution of)

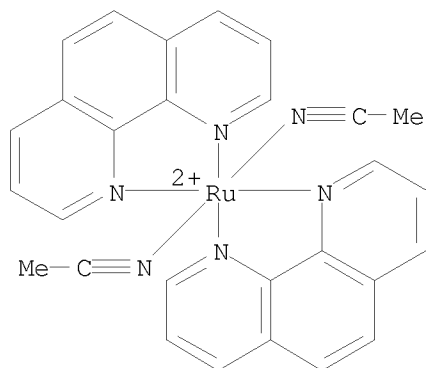
RN 858362-01-3 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-  
 $\kappa N1, \kappa N10$ )-, (OC-6-22)-, salt with trifluoromethanesulfonic  
acid (1:2) (9CI) (CA INDEX NAME)

10/585,013

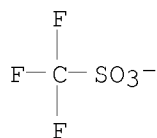
CM 1

CRN 85370-14-5  
CMF C28 H22 N6 Ru  
CCI CCS



CM 2

CRN 37181-39-8  
CMF C F3 O3 S



OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)  
REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 24 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 2004:559520 CAPLUS  
DOCUMENT NUMBER: 141:261150  
TITLE: Ruthenium(II) Dipyrldoquinoxaline-Norbornene: Synthesis, Properties, Crystal Structure, and Use as a ROMP Monomer  
AUTHOR(S): Rezvani, Ali; Bazzi, Hassan S.; Chen, Bingzhi; Rakotondradany, Felaniaina; Sleiman, Hanadi F.  
CORPORATE SOURCE: Department of Chemistry, McGill University, Montreal, QC, H3A 2K6, Can.  
SOURCE: Inorganic Chemistry (2004), 43(16), 5112-5119  
CODEN: INOCAJ; ISSN: 0020-1669  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB The synthesis, X-ray structure, and electrochem. and photophys. characterization of [Ru(phen)2dpq-n][PF6]2 (phen = phenanthroline, dpq-n = dipyrldoquinoxaline-norbornene) are described. This complex contains a



10/585,013

Ru(phen)<sub>3</sub><sup>2+</sup> moiety in close conjugation with a norbornene unit and is the first example of a Ru(II) diimine complex capable of undergoing ring-opening metathesis polymerization. Luminescence studies of this complex showed an increase in quantum efficiency in polar solvents and in water. Preliminary ring-opening metathesis polymerization studies, carried out at low monomer-to-initiator ratio, showed the formation of an oligomeric mixture composed mainly of the dimer of this complex. This dimer exhibits photophys. and redox properties similar to those of the monomer, indicating that the Ru(phen)<sub>3</sub><sup>2+</sup> moiety remains intact during the polymerization

IT 181784-48-5

RL: RCT (Reactant); RACT (Reactant or reagent)

(Ru(II) dipyridoquinoxaline-norbornene complex synthesis, properties, crystal structure, and ring opening metathetic oligomerization)

RN 181784-48-5 CAPLUS

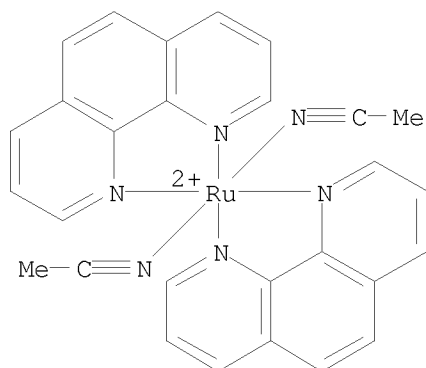
CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-  
κN1,κN10)-, (OC-6-22-A)-, bis[hexafluorophosphate(1-)]  
(9CI) (CA INDEX NAME)

CM 1

CRN 181784-45-2

CMF C28 H22 N6 Ru

CCI CCS

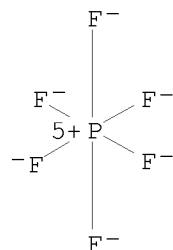


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 15 THERE ARE 15 CAPLUS RECORDS THAT CITE THIS

RECORD (15 CITINGS)  
 REFERENCE COUNT: 62 THERE ARE 62 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 25 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2004:454852 CAPLUS

DOCUMENT NUMBER: 141:166746

TITLE: Crystallization-induced asymmetric transformation of  
 chiral-at-metal ruthenium(II) complexes bearing  
 achiral ligands

AUTHOR(S): Hamelin, Olivier; Pecaut, Jacques; Fontecave, Marc

CORPORATE SOURCE: Laboratoire de Chimie et Biochimie des Centres Redox  
 Biologiques DRDC-CB, UMR 5047 Universite Joseph  
 Fourier/CEA/CNRS CEA Grenoble, Grenoble, 38054, Fr.

SOURCE: Chemistry--A European Journal (2004), 10(10),  
 2548-2554

CODEN: CEUJED; ISSN: 0947-6539

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 141:166746

AB Recently, the enantiopure  $\Lambda$  form of the tributylammonium salt of  
 the chiral anion tris[tetrachlorobenzene-1,2-diolato]phosphate, also named  
 Trisphat, was able to induce an efficient resolution of a  $\Delta, \Lambda$   
 racemic mixture of cis-[Ru(dmp)<sub>2</sub>(NCCH<sub>3</sub>)<sub>2</sub>](PF<sub>6</sub>)<sub>2</sub> (dmp =  
 2,9-dimethyl-1,10-phenanthroline) due to the spontaneous and selective  
 precipitation of the heterochiral pair [ $\Lambda$ -Ru(dmp)<sub>2</sub>(MeCN)<sub>2</sub>][ $\Lambda$ -  
 Trisphat]<sub>2</sub>. The authors report here that the combination of such a  
 stereoselective precipitation process and irradiation results in the quant.  
 conversion

of the initial [Ru(dmp)<sub>2</sub>(NCCH<sub>3</sub>)<sub>2</sub>]<sup>2+</sup> racemate into only one of the two  
 enantiomers. This is the 1st example in inorg. chemical of an asym.  
 transformation that leads to a chiral complex with no chiral ligand.  
 Finally, three new racemic Ru bis(diimine) complexes,  
 [Ru(dmp)<sub>2</sub>(NCCH<sub>3</sub>)Py](PF<sub>6</sub>)<sub>2</sub>, [Ru(dmp)<sub>2</sub>(1,3-diaminopropane)](PF<sub>6</sub>)<sub>2</sub>, and  
 [Ru(dmp)<sub>2</sub>(ethylenediamine)](PF<sub>6</sub>)<sub>2</sub> were synthesized. For all of them,  
 crystallization-induced asym. transformation proved to be an efficient way of  
 obtaining the corresponding optically active chiral-at-metal complexes in  
 high yields and with excellent stereoselectivities.

IT 727669-14-9

RL: CPS (Chemical process); FMU (Formation, unclassified); PEP (Physical,  
 engineering or chemical process); FORM (Formation, nonpreparative); PROC  
 (Process)

(formation by photoisomerization of delta isomer)

RN 727669-14-9 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(2,9-dimethyl-1,10-phenanthroline-  
 $\kappa$ N1, $\kappa$ N10)-, (OC-6-22-A)-,  
 bis[(OC-6-11-A)-tris[3,4,5,6-tetrachloro-1,2-benzenediolato(2-)-  
 $\kappa$ O, $\kappa$ O']phosphate(1-)] (9CI) (CA INDEX NAME)

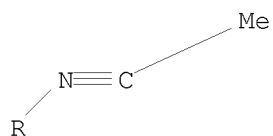
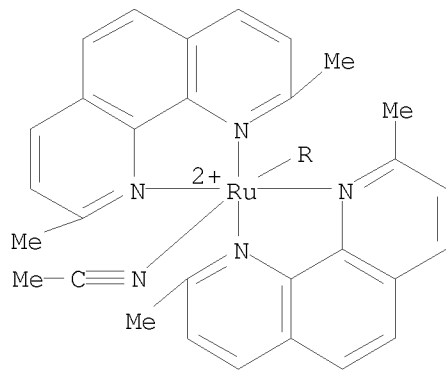
CM 1

CRN 586954-41-8

CMF C32 H30 N6 Ru

CCI CCS

10/585,013

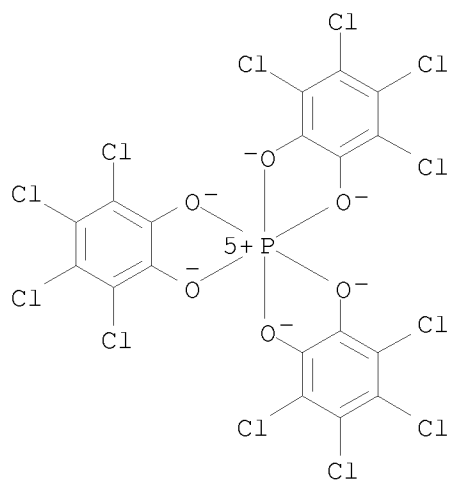


CM 2

CRN 215797-16-3

CMF C18 C112 O6 P

CCI CCS



IT 586954-40-7

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
(photoisomerization of)

RN 586954-40-7 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(2,9-dimethyl-1,10-phenanthroline-  
κN1,κN10)-, (OC-6-22-Δ)-,  
bis[(OC-6-11-Δ)-tris[3,4,5,6-tetrachloro-1,2-benzenediolato(2-)-  
κO,κO']phosphate(1-)] (9CI) (CA INDEX NAME)

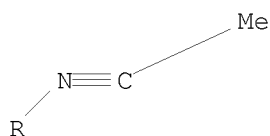
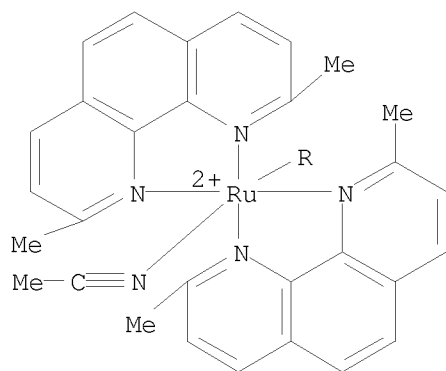
10/585,013

CM 1

CRN 586954-39-4

CMF C32 H30 N6 Ru

CCI CCS

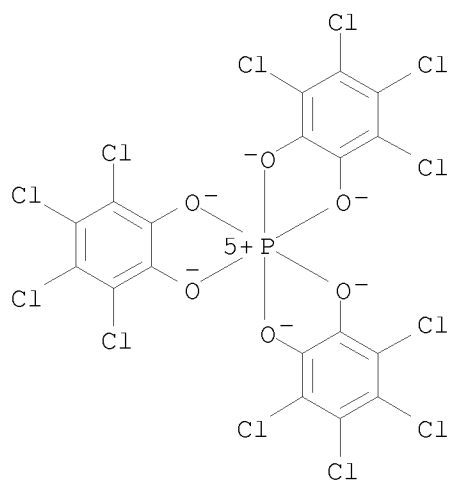


CM 2

CRN 215797-16-3

CMF C18 Cl12 O6 P

CCI CCS



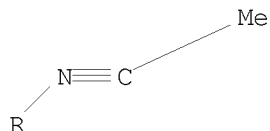
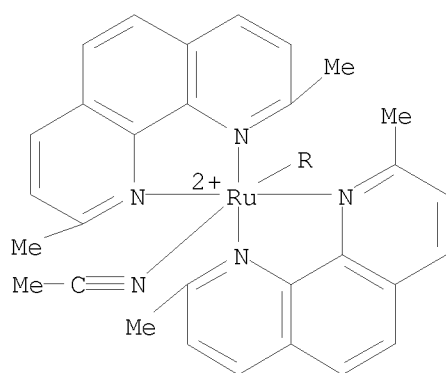
IT 133090-93-4

RL: RCT (Reactant); RACT (Reactant or reagent)

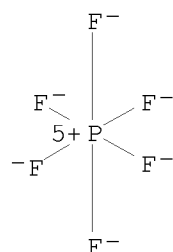
(reactant for preparation of ruthenium dimethylphenanthroline pyridine complex and light-induced reaction with

10/585,013

Λ-tris([tetrachlorobenzenediolato]phosphate)  
RN 133090-93-4 CAPLUS  
CN Ruthenium(2+), bis(acetonitrile)bis(2,9-dimethyl-1,10-phenanthroline-κN1,κN10)-, (OC-6-22)-, bis[hexafluorophosphate(1-)] (9CI)  
(CA INDEX NAME)  
CM 1  
CRN 99547-22-5  
CMF C32 H30 N6 Ru  
CCI CCS



CM 2  
CRN 16919-18-9  
CMF F6 P  
CCI CCS



OS.CITING REF COUNT: 20 THERE ARE 20 CAPLUS RECORDS THAT CITE THIS  
RECORD (20 CITINGS)  
REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

ACCESSION NUMBER: 2004:424793 CAPLUS  
 DOCUMENT NUMBER: 141:150152  
 TITLE: Use of chiral capillary electrophoresis and circular dichroism for the determination of absolute values of  $\Delta\epsilon$  for diimine transition metal complexes  
 AUTHOR(S): Herbert, Brad J.; Carpenter, Holly E.; Kane-Maguire, Noel A. P.; Wheeler, John F.  
 CORPORATE SOURCE: Department of Chemistry, Furman University, Greenville, SC, 29613-0420, USA  
 SOURCE: Analytica Chimica Acta (2004), 514(1), 27-35  
 CODEN: ACACAM; ISSN: 0003-2670  
 PUBLISHER: Elsevier Science B.V.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB CD alone cannot be used to derive absolute values of  $\Delta\epsilon$  for optically active transition metal (TM) complexes in the frequent instances in which pure, resolved stds. are unavailable. In the past, this led to discrepancies in the literature regarding the most appropriate value for use in assessing optical purity. The authors have recently shown that capillary electrophoresis (CE), employing a chiral selecting agent in the buffer, is a highly effective means to fully resolve the  $\Lambda$  and  $\Delta$  enantiomers of  $[M(\text{diimine})_3]^{n+}$  complexes. In this extension to that work, CE peak areas for optically active (but not optically pure) TM complexes are used in combination with CD spectra that are independently obtained for the same samples to extrapolate absolute CD values,  $\Delta\epsilon$ , for the pure  $\Lambda$  and  $\Delta$  isomers. Examples are provided for a variety of tris- and bis-diimine systems, including different coordinated metal (e.g., Cr, Ni, Ru, Co) and ligand (e.g., bipyridine, phenanthroline, oxalato, cyano, etc.) combinations rendering outer sphere complex charges of 0, +1, +2 and +3. Based on the absolute values for  $\Delta\epsilon$  presented accurate measurement of optical purity for a number of  $[M(\text{diimine})_3]^{n+}$  and cis- $[M(\text{diimine})_2X_2]^{n+}$  systems is now possible via routine CD anal.

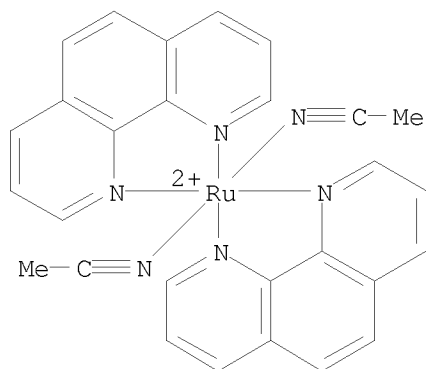
IT 85370-14-5, cis-Bis(acetonitrile)bis(1,10-phenanthroline)ruthenium(2+) 181784-43-0,  
 $\Delta$ -cis-Bis(acetonitrile)bis(1,10-phenanthroline)ruthenium(2+)  
 181784-45-2,  $\Lambda$ -cis-Bis(acetonitrile)bis(1,10-phenanthroline)ruthenium(2+)  
 RL: ANT (Analyte); ANST (Analytical study)  
 (chiral capillary electrophoresis and CD for determination of absolute values of

$\Delta\epsilon$  for diimine transition metal complexes)

RN 85370-14-5 CAPLUS

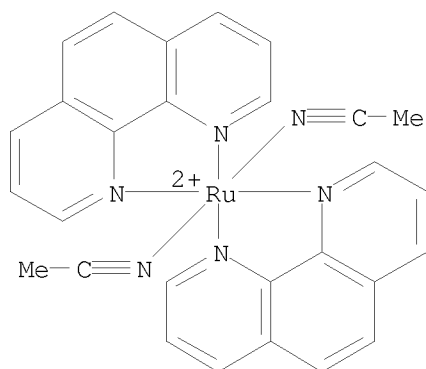
CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-  
 $\kappa N1, \kappa N10$ )-, (OC-6-22)- (CA INDEX NAME)

10/585,013



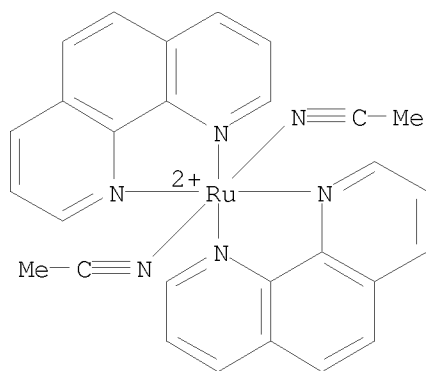
RN 181784-43-0 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-  
κN1,κN10)-, (OC-6-22-Δ)- (CA INDEX NAME)



RN 181784-45-2 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-  
κN1,κN10)-, (OC-6-22-Δ)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 4

THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD  
(4 CITINGS)

REFERENCE COUNT: 53

THERE ARE 53 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 27 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2004:410275 CAPLUS

DOCUMENT NUMBER: 141:131153

TITLE: Light-driven machine prototypes based on dissociative excited states: Photoinduced decooordination and thermal recooordination of a ring in a ruthenium(II)-containing [2]catenane

AUTHOR(S): Mobian, Pierre; Kern, Jean-Marc; Sauvage, Jean-Pierre

CORPORATE SOURCE: Laboratoire de Chimie Organo-Minerales UMR CNRS no. 7513, Universite Louis Pasteur, Strasbourg, 67070, Fr.

SOURCE: Angewandte Chemie, International Edition (2004), 43(18), 2392-2395

CODEN: ACIEF5; ISSN: 1433-7851

PUBLISHER: Wiley-VCH Verlag GmbH &amp; Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A marked difference is observed in the photochem. of [2]catenanes containing a complexed ruthenium(II) center. The photochem. reactions result in a decooordination process and large amplitude motions through the formation of a strongly dissociative ligand-field excited state, with the rate dependent on the ring size. The back reaction is performed thermally.

IT 723312-03-6

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent) (rotaxane; photochem. decooordination and thermal recooordination of ring in [2]catenanes containing complexed ruthenium(II) center)

RN 723312-03-6 CAPLUS

CN Ruthenium(2+), bis(acetonitrile) (15,16,18,19,21,22,34,35,37,38,40,41,56,57,62,63-hexadecahydro-28,28-dimethyl-10,13:24,27:29,32:43,46:58,61-pentaetheno-9,4,7:47,49,52-bis(methanonitrilomethyno)-28H-[1,4,7,10,20,23,26,29]octaoxacyclononapentacontino[39,40-c:50,49-c']dipyridine-κN3,κN53,κN67,κN78)-, (OC-6-33)-, rotaxane compd. with (24Z)-10,13,16,19,22,27,30,33,36,39-decaoxa-47,48-diazatricyclo[41.3.1.12,6]octatetraconta-1(47),2,4,6(48),24,43,45-heptaene (1:1) (9CI) (CA INDEX NAME)

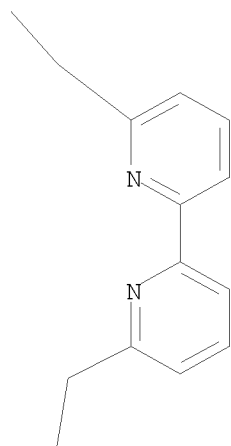
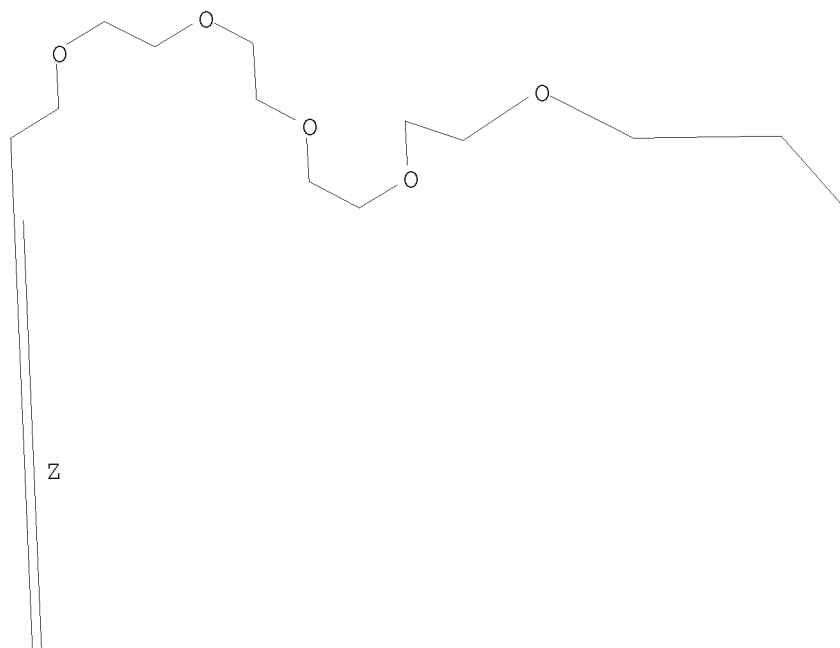
CM 1

CRN 723311-92-0

CMF C36 H56 N2 O10

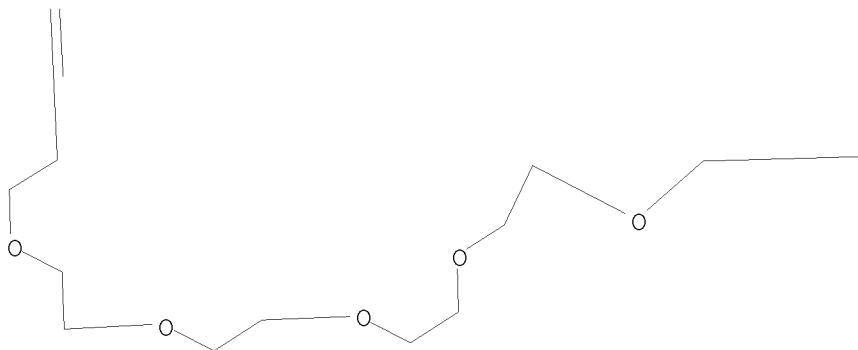
Double bond geometry as described by E or Z.





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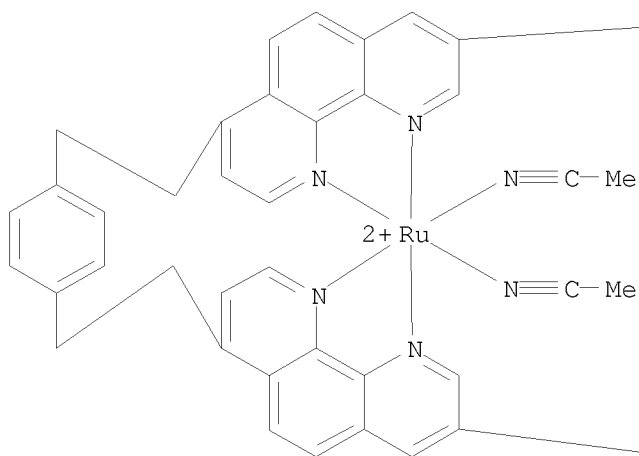
PAGE 2-B

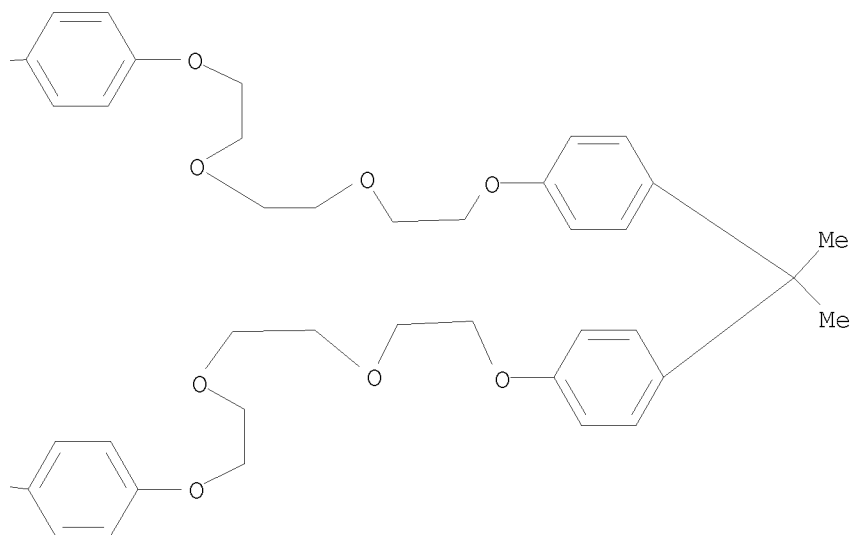


CM 2

CRN 671756-31-3  
CMF C77 H76 N6 O8 Ru  
CCI CCS

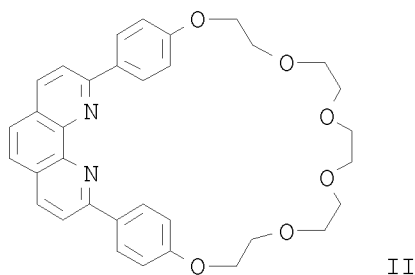
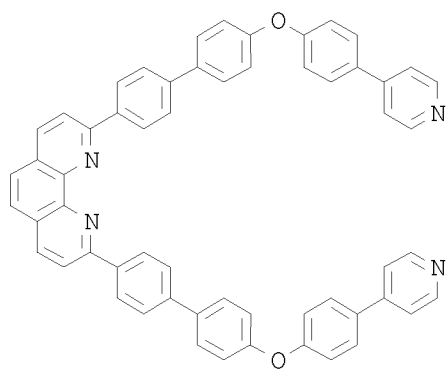
PAGE 1-A





OS.CITING REF COUNT: 90 THERE ARE 90 CAPLUS RECORDS THAT CITE THIS RECORD (90 CITINGS)  
 REFERENCE COUNT: 52 THERE ARE 52 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 28 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 2004:125069 CAPLUS  
 DOCUMENT NUMBER: 140:313920  
 TITLE: Irreversible but Noncovalent Ru(II)-Pyridine Bond: Its Use for the Formation of [2]-Catenanes  
 AUTHOR(S): Colasson, B. X.; Sauvage, J. P.  
 CORPORATE SOURCE: Laboratoire de Chimie Organo-Minérale, UMR 7513 au CNRS, Institut Le Bel, Université Louis Pasteur, Strasbourg, F-67070, Fr.  
 SOURCE: Inorganic Chemistry (2004), 43(6), 1895-1901  
 CODEN: INOCAJ; ISSN: 0020-1669  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 140:313920  
 GI



AB The reaction between a ligand (L, I) which consists of two terminal pyridines attached to a central 1,10-phenanthroline (phen) and the complex  $\text{Ru(phen)}_2(\text{CH}_3\text{CN})_2(\text{PF}_6)_2$  was studied. A new ruthenium containing metallamacrocycle,  $[(\text{L})\text{Ru(phen)}_2](\text{PF}_6)_2$ , was obtained and fully characterized, and its crystal structure was determined. Despite the relatively poor yield for the cyclization process involving the ruthenium center (20%), this strategy gave two different kinds of [2]-catenanes. The 1st example is a bimetallic Cu(I)/Ru(II) catenane,  $[(\text{L}')\text{Cu(L)Ru(phen)}_2](\text{PF}_6)_3$  ( $\text{L}' = \text{II}$ ), consisting of a purely organic ring interlocked with the ruthenium(II)-incorporating metallacycle.  $[(\text{L}')\text{Cu(L)Ru(phen)}_2](\text{PF}_6)_3$  was selectively demetalated at the Cu(I) center to lead to the free Ru(II)-containing catenane,  $[(\text{L}')(\text{L})\text{Ru(phen)}_2](\text{PF}_6)_2$ . A trimetallic Ru(II)/Cu(I)/Ru(II) catenane,  $[(\text{phen})_2\text{Ru(L)Cu(L)(phen)}_2](\text{PF}_6)_5$ , was also synthesized showing that this approach is reliable and promising for the elaboration of photoactive multicomponent systems.

IT 85370-15-6

RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of ruthenium(II) phenanthroline  
bis(pyridylphenoxybiphenyl)phenanthroline copper(I) trimetallic and  
crown ether-cyclized diphenylphenanthroline bimetallic [2]-catenane  
complexes)

RN 85370-15-6 CAPLUS

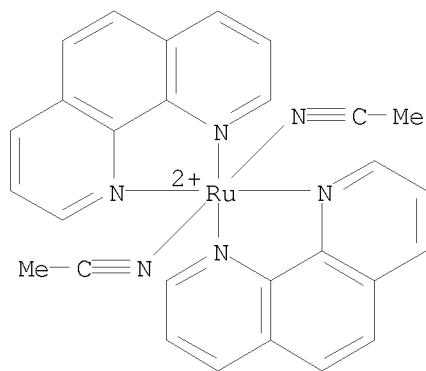
CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-  
 $\kappa\text{N}1, \kappa\text{N}10$ )-, (OC-6-22)-, bis[hexafluorophosphate(1-)] (9CI)  
(CA INDEX NAME)

CM 1

CRN 85370-14-5

CMF C28 H22 N6 Ru

CCI CCS

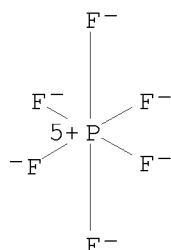


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 9 THERE ARE 9 CAPLUS RECORDS THAT CITE THIS RECORD (9 CITINGS)  
 REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 29 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 2004:69456 CAPLUS  
 DOCUMENT NUMBER: 140:280228  
 TITLE: Building [2]catenanes around a tris(diimine)ruthenium(2+) ([Ru(diimine)<sub>3</sub>]<sup>2+</sup>) complex core used as template  
 AUTHOR(S): Mobian, Pierre; Kern, Jean-Marc; Sauvage, Jean-Pierre  
 CORPORATE SOURCE: Laboratoire de Chimie Organo-Minérale, UMR 7513 du CNRS, Université Louis Pasteur, Faculté de Chimie, Strasbourg, F-67070, Fr.  
 SOURCE: Helvetica Chimica Acta (2003), 86(12), 4195-4213  
 CODEN: HCACAV; ISSN: 0018-019X  
 PUBLISHER: Verlag Helvetica Chimica Acta  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 140:280228  
 GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB In the last two decades, the use of transition metals as templates for constructing catenanes has almost exclusively been restricted to tetrahedral Cu(I). The present work deals with an octahedral metal, Ru(II), coordinated to three bidentate chelates. Incorporation of two chelates (1,10-phenanthroline) in a ring (I; R = CH<sub>2</sub>CH<sub>2</sub>, CH<sub>2</sub>O-p-C<sub>6</sub>H<sub>4</sub>CM<sub>2</sub>-p-C<sub>6</sub>H<sub>4</sub>OCH<sub>2</sub>) allows to prepare a C<sub>2</sub>-sym. Ru complex, the two chelates being disposed cis to one another. The ring is large enough to accommodate a 3rd chelate, thus allowing the metal-directed threading of a long fragment containing the 3rd chelate (2,2'-bipyridine derivative (II)).

The last step consists of a ring-closing metathesis reaction with two terminal olefins. The two Ru(II)-complexed catenanes were prepared by using this strategy, each containing a 42-membered ring interlocked to a larger macrocycle (50- or 63-membered ring) incorporating the two 1,10-phenanthroline chelates. It is expected that these catenanes can be set in motion under light-irradiation, thus behaving as photochem. driven mol. machines.

IT 671756-27-7P  
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

10/585,013

of (preparation and crystal structure and reaction with ethylenoxy derivative  
bipyridine in preparation of catenanes)

RN 671756-27-7 CAPLUS

CN Ruthenium(2+), bis(acetonitrile) (15,16,18,19,21,22,24,25,27,28,43,44,49,50-  
tetradecahydro-10,13:30,33:45,48-trietheno-9,4,7:34,36,39-  
bis(methenonitrilomethyno) [1,4,7,10,13,16]hexaoxacyclohexatetracontino[26,  
27-c:37,36-c']dipyridine- $\kappa$ N3, $\kappa$ N40, $\kappa$ N54, $\kappa$ N61)-,  
(OC-6-33)-, bis[hexafluorophosphate(1-)], compd. with acetonitrile (1:1),  
monohydrate (9CI) (CA INDEX NAME)

CM 1

CRN 75-05-8

CMF C2 H3 N

$\text{H}_3\text{C}-\text{C}\equiv\text{N}$

CM 2

CRN 503089-45-0

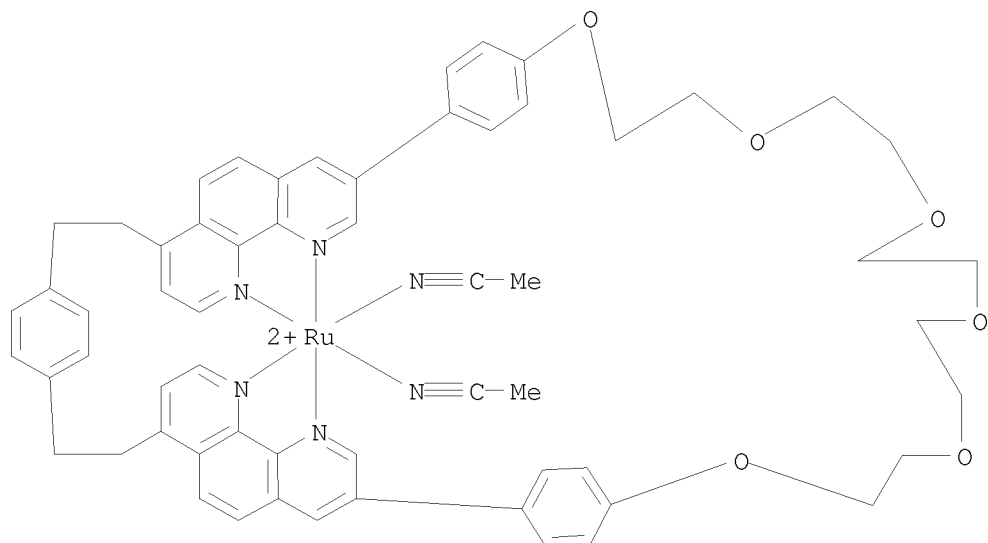
CMF C60 H58 N6 O6 Ru . 2 F6 P

CM 3

CRN 503089-44-9

CMF C60 H58 N6 O6 Ru

CCI CCS



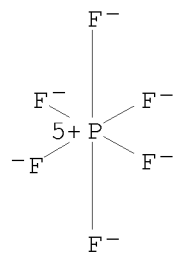
CM 4

CRN 16919-18-9

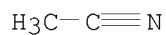
CMF F6 P

CCI CCS

10/585,013

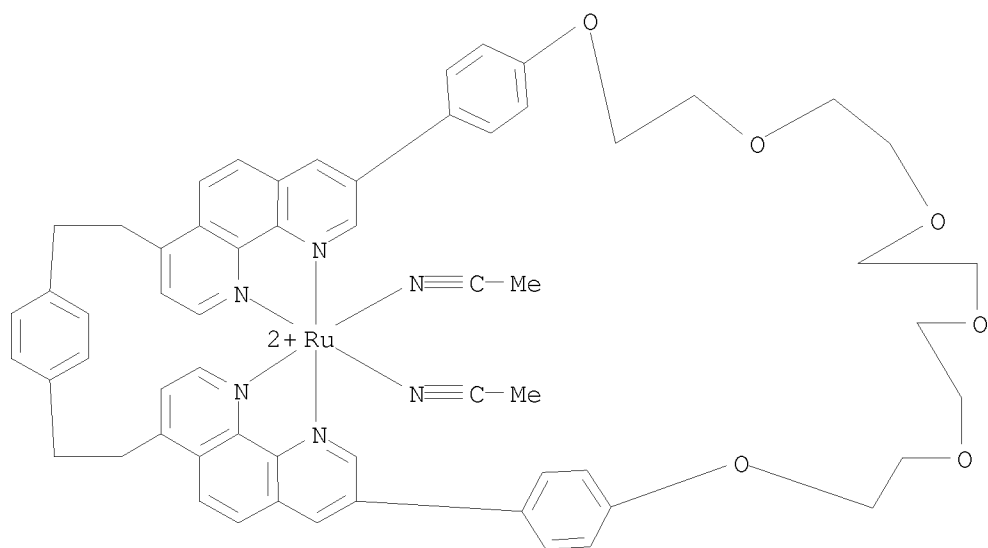


IT 672287-75-1P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and crystal structure of)  
RN 672287-75-1 CAPLUS  
CN Ruthenium(2+), bis(acetonitrile)(15,16,18,19,21,22,24,25,27,28,43,44,49,50-  
tetradecahydro-10,13:30,33:45,48-trietheno-9,4,7:34,36,39-  
bis(methenonitrilomethyno)[1,4,7,10,13,16]hexaoxacyclohexatetracontino[26,  
27-c:37,36-c']dipyridine- $\kappa\text{N}3$ , $\kappa\text{N}40$ , $\kappa\text{N}54$ , $\kappa\text{N}61$ )-,  
(OC-6-13)-, bis[hexafluorophosphate(1-)], compd. with acetonitrile (1:1),  
monohydrate (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 75-05-8  
CMF C2 H3 N



CM 2  
  
CRN 672287-74-0  
CMF C60 H58 N6 O6 Ru . 2 F6 P  
  
CM 3  
  
CRN 672287-73-9  
CMF C60 H58 N6 O6 Ru  
CCI CCS

10/585,013

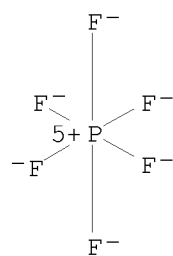


CM 4

CRN 16919-18-9

CMF F6 P

CCI CCS



IT 671756-32-4P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and reaction with ethylenoxy derivative of bipyridine in preparation of catenanes)

RN 671756-32-4 CAPLUS

CN Ruthenium(2+), bis(acetonitrile) (15,16,18,19,21,22,34,35,37,38,40,41,56,57,62,63-hexadecahydro-28,28-dimethyl-10,13:24,27:29,32:43,46:58,61-pentaetheno-9,4,7:47,49,52-bis(methenonitrilomethyno)-28H-[1,4,7,10,20,23,26,29]octaoxacyclononapentacontino[39,40-c:50,49-c']dipyridine-κN3,κN53,κN67,κN78)-, (OC-6-33)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

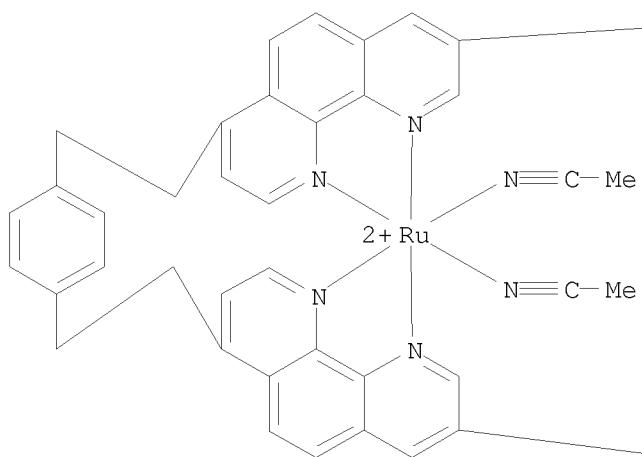
CRN 671756-31-3

CMF C77 H76 N6 O8 Ru

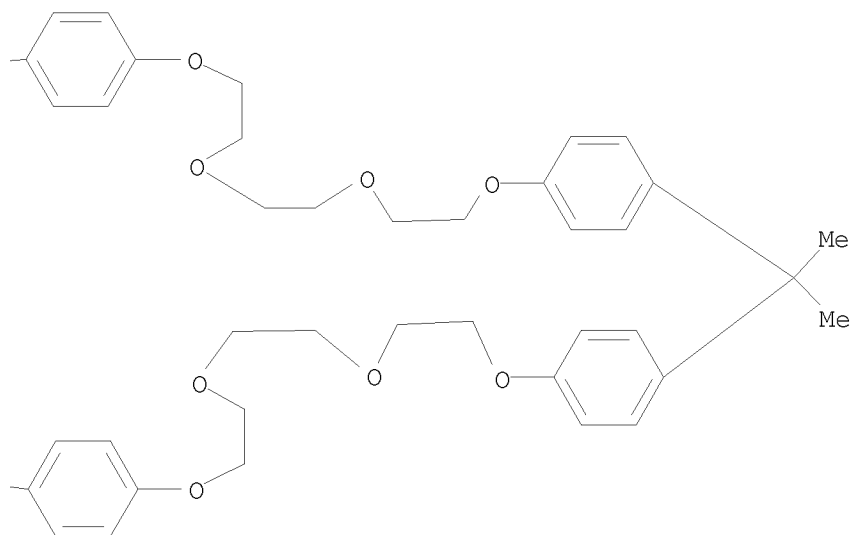
CCI CCS



PAGE 1-A



PAGE 1-B



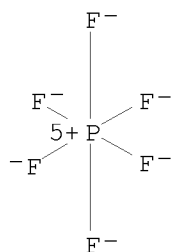
CM 2

CRN 16919-18-9

CMF F6 P

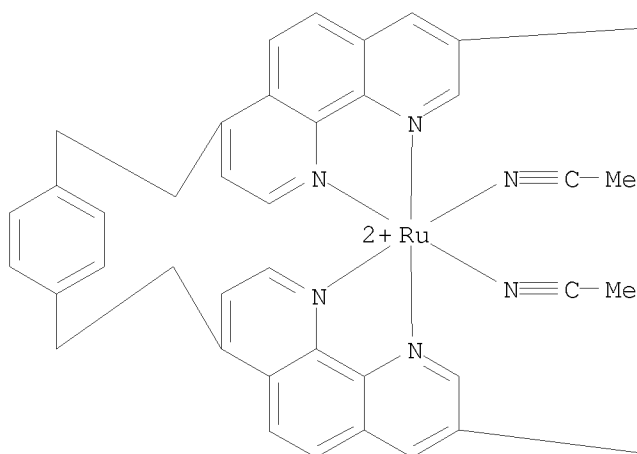
CCI CCS

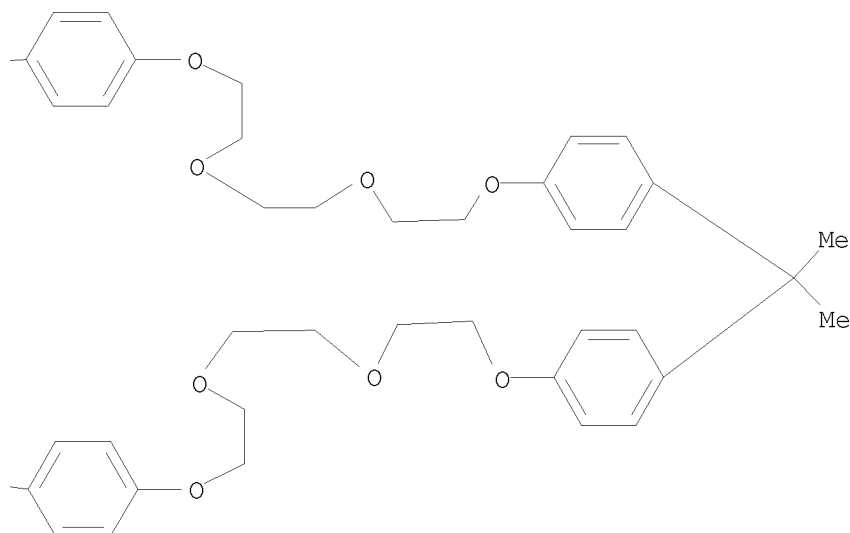
10/585,013



IT 672287-77-3P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)  
RN 672287-77-3 CAPLUS  
CN Ruthenium(2+), bis(acetonitrile) (15,16,18,19,21,22,34,35,37,38,40,41,56,57  
pentaetheno-9,4,7:47,49,52-bis(methanonitrilomethyno)-28H-  
[1,4,7,10,20,23,26,29]octaoxacyclononapentacontino[39,40-c:50,49-  
c']dipyridine-κN3,κN53,κN67,κN78)-, (OC-6-13)-,  
bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 672287-76-2  
CMF C77 H76 N6 O8 Ru  
CCI CCS

PAGE 1-A



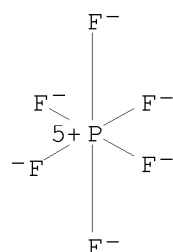


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 17 THERE ARE 17 CAPLUS RECORDS THAT CITE THIS RECORD (18 CITINGS)

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 30 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2003:740932 CAPLUS

DOCUMENT NUMBER: 139:316061

TITLE: Templated synthesis of a rotaxane with a [Ru(diimine)<sub>3</sub>]<sup>2+</sup> core

AUTHOR(S): Pomeranc, Didier; Jouvenot, Damien; Chambron, Jean-Claude; Collin, Jean-Paul; Heitz, Valerie; Sauvage, Jean-Pierre

CORPORATE SOURCE: Laboratoire de Chimie Organo-Minérale, UMR 7513 du CNRS Université Louis Pasteur, Faculté de Chimie, Strasbourg, 67070, Fr.

SOURCE: Chemistry--A European Journal (2003), 9(17), 4247-4254  
CODEN: CEUJED; ISSN: 0947-6539

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 139:316061  
 GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB A rotaxane containing a Ru bisphenanthroline complex, acting as an axis, and a macrocycle (I) incorporating a 2,2'-bipyridine (bpy) unit, threaded by the axis, [Ru(I)(II)], was synthesized. The bisphenanthroline ligand (II) is such that its Ru(II) complexes possess a clearly identified axis, making such compds. ideal components of rotaxanes constructed around an octahedral Ru(II) center, which serves as a template. The ring is threaded by the axial Ru(II) precursor complex, to afford the corresponding pseudorotaxane in moderate yield. The x-ray structure anal. of this compound reveals the threaded nature of the complex. The length of the threaded ring (35 atoms in the periphery) is too short to allow easy threading of the axis through the macrocycle. As a consequence, an isomer is also obtained for which the axial Ru complex is attached in an exo fashion. 1H NMR studies were carried out, which reveal various conformational equilibrium for the pseudorotaxane. Light-induced decoordination of the bpy-containing cyclic fragment is quant. and to lead to the free ring and the axial Ru(II) complex, regardless of the starting compound (pseudorotaxane or exo isomer). Finally, the real rotaxane could be prepared, although it could not be separated from its exo isomer.

IT 610310-43-5P

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process) (preparation and dissociation of rotaxane)

RN 610310-43-5 CAPLUS

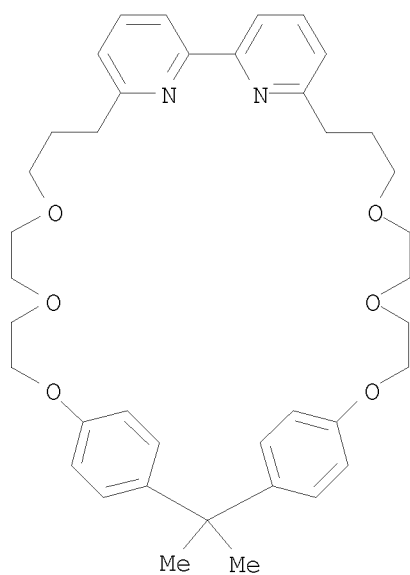
CN Ruthenium(2+), bis(acetonitrile)[4,4'-(1,4-phenylenedi-2,1-ethanediyl)bis[7-[4-[3-[tris[4-(1,1-dimethylethyl)phenyl]methoxy]propoxy]phenyl]-1,10-phenanthroline-κN1,κN10]]-, (OC-6-33)-, bis[hexafluorophosphate(1-)], compd. with 2,2-dimethyl-7,10,13,30,33,36-hexaoxa-42,43-diazapentacyclo[35.2.2.23,6.117,21.122,26]pentatetraconta-3,5,17,19,21(43),22,24,26(42),37,39,40,44-dodecaene (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 610310-25-3

CMF C39 H48 N2 O6

10/585,013



CM 2

CRN 610310-42-4

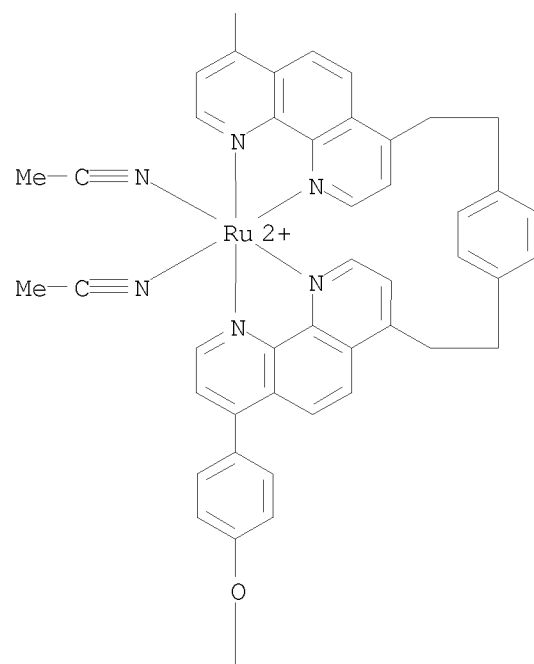
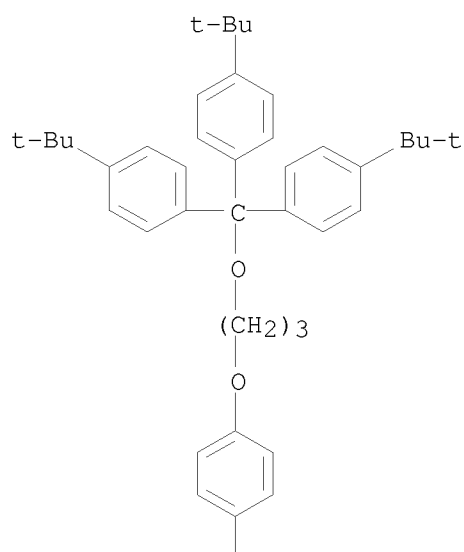
CMF C118 H128 N6 O4 Ru . 2 F6 P

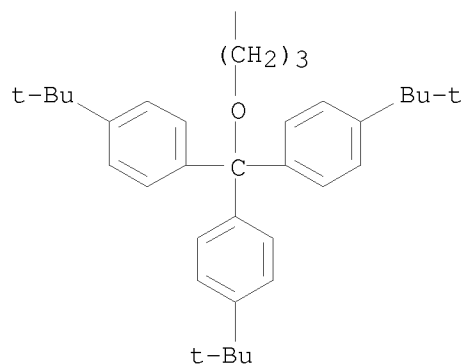
CM 3

CRN 610310-41-3

CMF C118 H128 N6 O4 Ru

CCI CCS



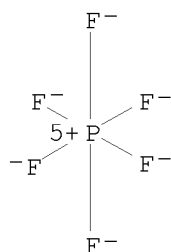


CM 4

CRN 16919-18-9

CMF F6 P

CCI CCS



IT 610310-27-5P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and reactant for preparation of ruthenium phenanthroline derivative

bipyridinediyl ether macrocycle pseudorotaxane and other related complexes)

RN 610310-27-5 CAPLUS

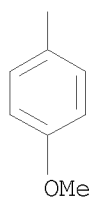
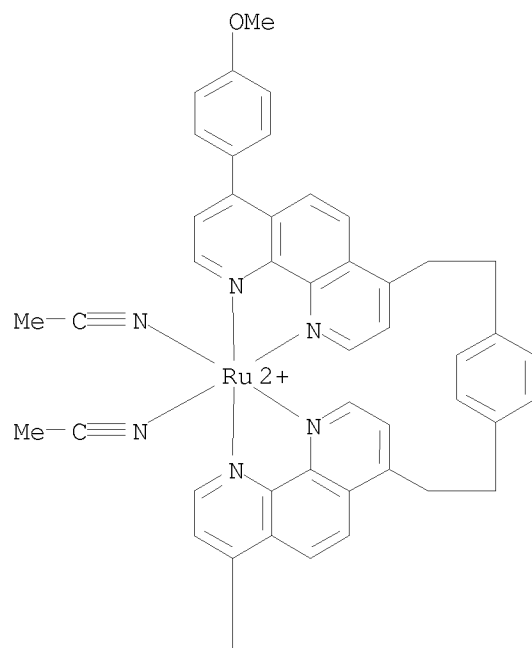
CN Ruthenium(2+), bis(acetonitrile)[4,4'-(1,4-phenylenedi-2,1-ethanediyl)bis[7-(4-methoxyphenyl)-1,10-phenanthroline-κN1,κN10]]-, (OC-6-33)-, bis[hexafluorophosphate(1-)] (9CI)  
(CA INDEX NAME)

CM 1

CRN 610310-26-4

CMF C52 H44 N6 O2 Ru

CCI CCS

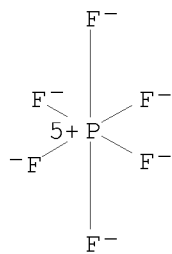


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



IT 610310-35-5P



10/585,013

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and reaction for preparation of ruthenium phenanthroline derivative

complex as rotaxane with bipyridinediyl ether macrocycle)

RN 610310-35-5 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)[4,4'-[1,4-phenylenebis[2,1-ethanediyl(1,10-phenanthroline-7,4-diyl- $\kappa$ N1, $\kappa$ N10)]]bis[phenol]]-, (OC-6-33)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

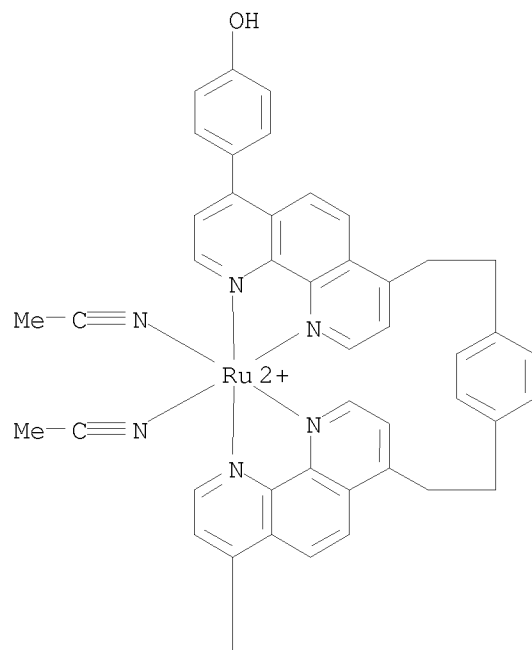
CM 1

CRN 610310-34-4

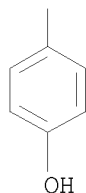
CMF C50 H40 N6 O2 Ru

CCI CCS

PAGE 1-A

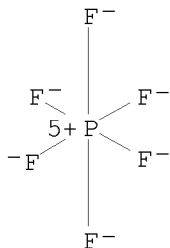


PAGE 2-A



CM 2

CRN 16919-18-9  
 CMF F6 P  
 CCI CCS



OS.CITING REF COUNT: 34 THERE ARE 34 CAPLUS RECORDS THAT CITE THIS RECORD (35 CITINGS)  
 REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 31 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2003:501690 CAPLUS

DOCUMENT NUMBER: 139:223094

TITLE: "Chiral-at-Metal" Octahedral Ruthenium(II) Complexes with Achiral Ligands: A New Type of Enantioselective Catalyst

AUTHOR(S): Chavarot, Murielle; Menage, Stephane; Hamelin, Olivier; Charnay, Florence; Pecaut, Jacques; Fontecave, Marc

CORPORATE SOURCE: Laboratoire de Chimie et Biochimie des Centres Redox Biologiques, DRDC-CB, UMR 5047, Universite Joseph Fourier/CEA/CNRS, Grenoble, 38054, Fr.

SOURCE: Inorganic Chemistry (2003), 42(16), 4810-4816  
 CODEN: INOCAJ; ISSN: 0020-1669

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 139:223094

AB Cis-[Ru(dmp)2(CH3CN)2][PF6]2 (dmp = 2,9-dimethyl-1,10-phenanthroline), complex 1[PF6]2, exists in two enantiomeric forms,  $\Delta$  and  $\Lambda$ .

During treatment with the chiral anion

tris(tetrachlorobenzene-1,2-diolato)phosphate(V), also named Trisphat, in dichloromethane it was possible to selectively precipitate each enantiomer, associated with Trisphat as the heterochiral pair. This enantiomerically pure compound was characterized in solution by UV-visible, CD, ESI-MS, and NMR spectroscopy and by x-ray crystallog. in the solid state. Trisphat was also used as an NMR chiral shift reagent to determine the enantiomeric excess of the complex preps. The chiral-at-metal ruthenium complex was evaluated as a catalyst for the oxidation of sulfides to sulfoxides by hydrogen peroxide. The reactions displayed a low but significant level of enantioselectivity (18% ee in the case of 4-bromophenyl Me sulfide). The results thus provide the first demonstration that the chiral information carried by a stereogenic metal center can be catalytically transferred to mols. during stereoselective oxidation

IT 586954-46-3P

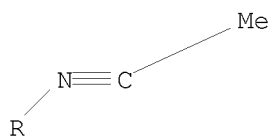
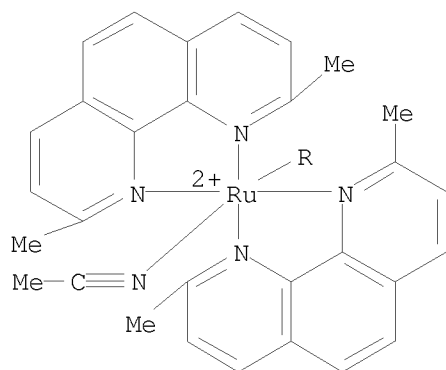
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation and crystal structure of chiral ruthenium acetonitrile dimethylphenanthroline complex catalyst for enantioselective sulfide oxidation)

10/585,013

RN 586954-46-3 CAPLUS  
CN Ruthenium(2+), bis(acetonitrile)bis(2,9-dimethyl-1,10-phenanthroline-  
κN1,κN10)-, (OC-6-22-Λ)-,  
bis[(OC-6-11-Δ)-tris[3,4,5,6-tetrachloro-1,2-benzenediolato(2-)-  
κO,κO']phosphate(1-)]-, compd. with dichloromethane (1:2),  
decahydrate (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 75-09-2  
CMF C H2 C12

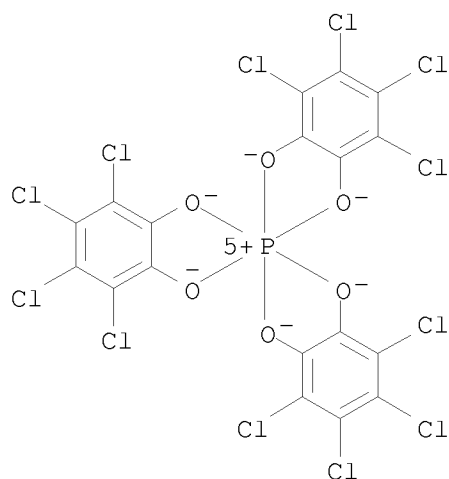
C1-CH<sub>2</sub>-C1

CM 2  
  
CRN 586954-42-9  
CMF C32 H30 N6 Ru . 2 C18 C112 O6 P  
  
CM 3  
  
CRN 586954-41-8  
CMF C32 H30 N6 Ru  
CCI CCS

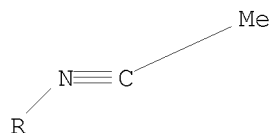
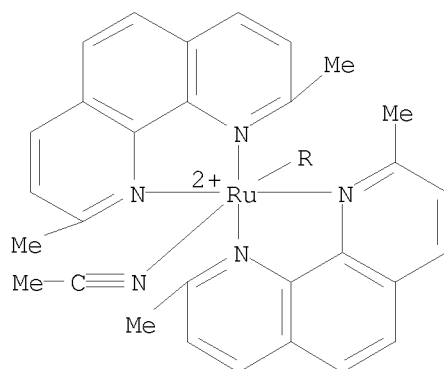


CM 4  
  
CRN 213177-19-6  
CMF C18 C112 O6 P  
CCI CCS

10/585,013



IT 586954-40-7P 586954-42-9P 586954-43-0P  
 586954-44-1P  
 RL: CAT (Catalyst use); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
 (preparation and of chiral ruthenium acetonitrile dimethylphenanthroline complex catalyst for enantioselective sulfide oxidation)  
 RN 586954-40-7 CAPLUS  
 CN Ruthenium(2+), bis(acetonitrile)bis(2,9-dimethyl-1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-, (OC-6-22- $\Delta$ )-, bis[(OC-6-11- $\Delta$ )-tris[3,4,5,6-tetrachloro-1,2-benzenediolato(2-)- $\kappa$ O, $\kappa$ O']phosphate(1-)] (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 586954-39-4  
 CMF C32 H30 N6 Ru  
 CCI CCS



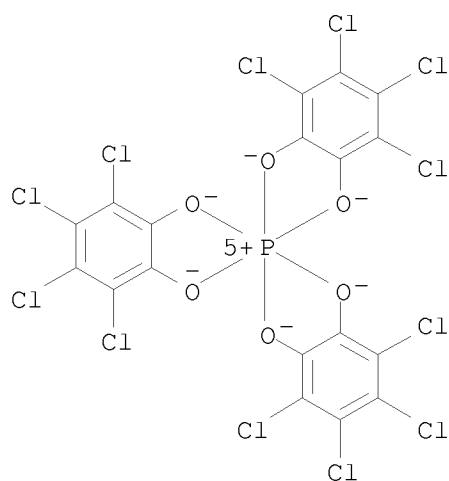
10/585,013

CM 2

CRN 215797-16-3

CMF C18 C112 O6 P

CCI CCS



RN 586954-42-9 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(2,9-dimethyl-1,10-phenanthroline-  
 $\kappa$ N1, $\kappa$ N10)-, (OC-6-22- $\Delta$ )-,  
bis[(OC-6-11- $\Delta$ )-tris[3,4,5,6-tetrachloro-1,2-benzenediolato(2-)-  
 $\kappa$ O, $\kappa$ O']phosphate(1-)] (9CI) (CA INDEX NAME)

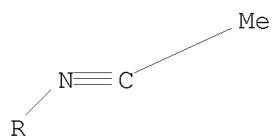
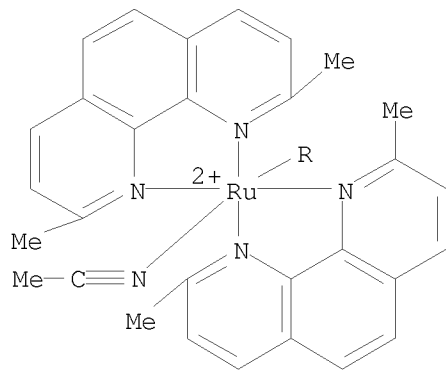
CM 1

CRN 586954-41-8

CMF C32 H30 N6 Ru

CCI CCS

10/585,013

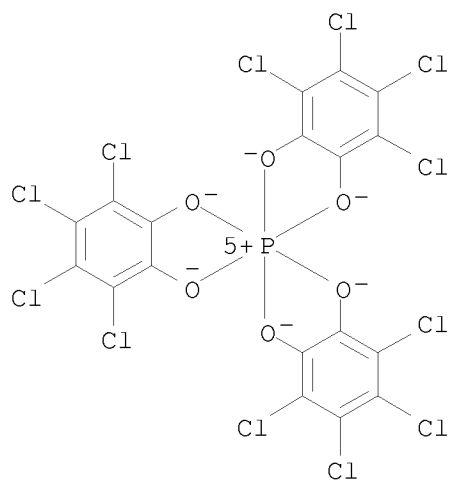


CM 2

CRN 213177-19-6

CMF C18 C112 O6 P

CCI CCS



RN 586954-43-0 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(2,9-dimethyl-1,10-phenanthroline-  
κN1,κN10)-, (OC-6-22-Λ)-, bis[hexafluorophosphate(1-)]  
(9CI) (CA INDEX NAME)

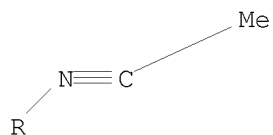
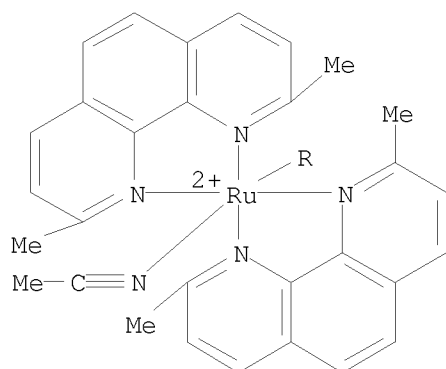
CM 1

CRN 586954-41-8

CMF C32 H30 N6 Ru

CCI CCS

10/585,013

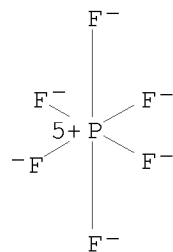


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



RN 586954-44-1 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(2,9-dimethyl-1,10-phenanthroline-  
κN1,κN10)-, (OC-6-22-Δ)-, bis[hexafluorophosphate(1-)]  
(9CI) (CA INDEX NAME)

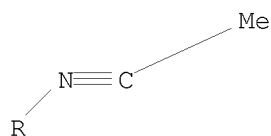
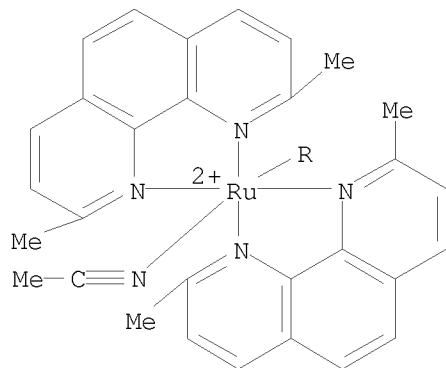
CM 1

CRN 586954-39-4

CMF C32 H30 N6 Ru

CCI CCS

10/585,013

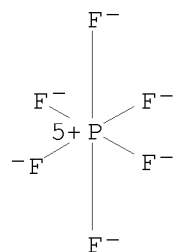


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



IT 133090-93-4P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and resolution of ruthenium acetonitrile dimethylphenanthroline complex using tris(tetrachlorobenzenediolato)phosphate)

RN 133090-93-4 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(2,9-dimethyl-1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-, (OC-6-22)-, bis[hexafluorophosphate(1-)] (9CI)  
(CA INDEX NAME)

CM 1

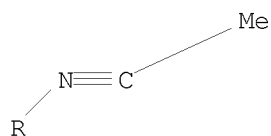
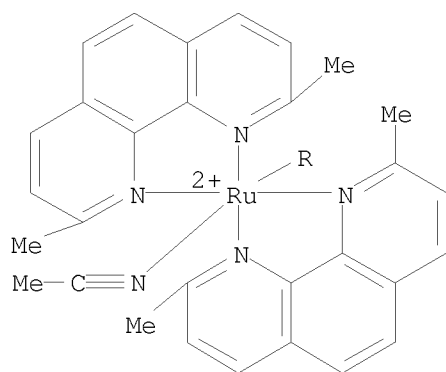
CRN 99547-22-5

CMF C32 H30 N6 Ru

CCI CCS



10/585,013

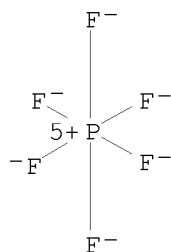


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 37 THERE ARE 37 CAPLUS RECORDS THAT CITE THIS RECORD (37 CITINGS)  
REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 32 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 2003:407010 CAPLUS  
DOCUMENT NUMBER: 139:355482  
TITLE: Studies of sensitizers: Ru(2R-bpy)2(NCS)2 (R = OH, H, COOH, SO3, NO2), Ru(dephen)2(NCS)2 and Ru(dcbpy)2Cl2 with DFT method  
AUTHOR(S): Shen, Yong; Zheng, Kang-Cheng; Li, Yu-Guang  
CORPORATE SOURCE: School of Chemistry and Chemical Eng., Zhongshan Univ., Canton, 510275, Peop. Rep. China  
SOURCE: Gaodeng Xuexiao Huaxue Xuebao (2002), 23(Suppl.), 330-334  
CODEN: KTHPDM; ISSN: 0251-0790  
PUBLISHER: Gaodeng Jiaoyu Chubanshe

DOCUMENT TYPE: Journal  
 LANGUAGE: Chinese

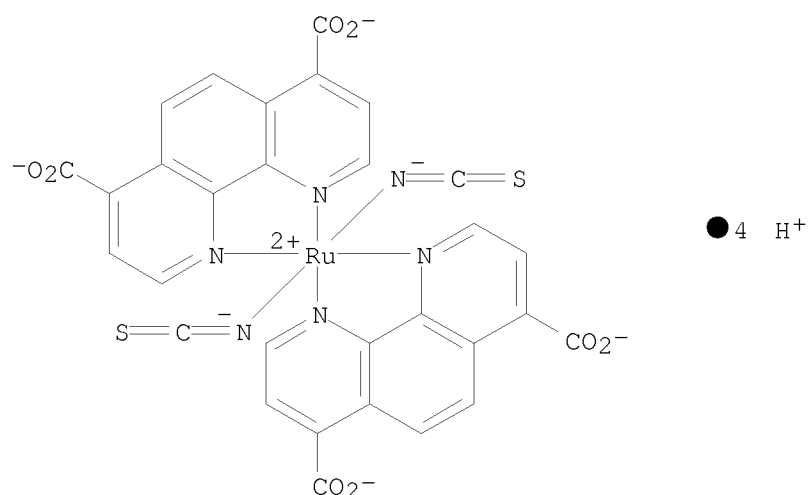
AB The studies on the sensitizers  $\text{Ru}(2\text{R-bpy})_2(\text{NCS})_2$  ( $\text{R} = \text{OH}, \text{H}, \text{COOH}, \text{SO}_3, \text{NO}_2$ ),  $\text{Ru}(\text{dcphen})_2(\text{NCS})_2$  and  $\text{Ru}(\text{dcbpy})_2\text{Cl}_2$  are carried out by using DFT method at B3LYP/LanL2DZ level. The calcn. results show that the HOMO comes mainly from the p-orbits of the NCS and the d of the Ru, the LUMO comes mainly from the p orbits of the bpy, the 1LLCT electronic spectrum can be predicted. The higher the electron-drawing ability of the group is, the lower both the EHOMO and ELUMO are, and the less the  $\Delta\text{EL-H}$  is. When the ELUMO and  $\Delta\text{EL-H}$  of a complex are near to those of  $\text{Ru}(\text{dcbpy})_2(\text{NCS})_2$ , the complex has a higher  $\eta_{\text{1.5}}$ . ELUMO and  $\Delta\text{EL-H}$  are important factors affecting  $\eta_{\text{1.5}}$ .

IT 214000-95-0

RL: PRP (Properties)  
 (MO calcns. of sensitizer)

RN 214000-95-0 CAPLUS

CN Ruthenate(4-), bis[1,10-phenanthroline-4,7-dicarboxylato(2-)- $\kappa\text{N}1, \kappa\text{N}10$ ]bis(thiocyanato- $\kappa\text{N}$ )-, tetrahydrogen, (OC-6-21)-(9CI) (CA INDEX NAME)



L6 ANSWER 33 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2003:352512 CAPLUS

DOCUMENT NUMBER: 139:77866

TITLE: Synthesis of a [2]Catenane around a  $\text{Ru}(\text{diimine})_3^{2+}$  Scaffold by Ring-Closing Metathesis of Olefins  
 AUTHOR(S): Arico, Fabio; Mobian, Pierre; Kern, Jean-Marc; Sauvage, Jean-Pierre

CORPORATE SOURCE: Laboratoire de Chimie Organo-Minérale, UMR 7513 du CNRS, Faculté de Chimie, Université Louis Pasteur, Strasbourg, 67070, Fr.

SOURCE: Organic Letters (2003), 5(11), 1887-1890

CODEN: ORLEF7; ISSN: 1523-7060

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 139:77866

AB The synthesis of a ruthenium[2]catenane is described. One ring includes two 1,10-phenanthroline moieties, the other a bipyridinic unit. The interlocking ring system was formed by using a double ring closing

metathesis reaction. Under irradiation, a rapid and selective decooordination of the bipyridinic fragment was observed, leading to a new catenane in which the metal is only coordinated to the bis-phenanthroline moiety.

IT 552316-48-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(intermediate product in preparation of ruthenium bipyridine-phenanthroline-polyether catenanes by ring-closing metathesis and subsequent selective photoinduced partial decomplexation)

RN 552316-48-0 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)[4,4'-(1,4-phenylenedi-2,1-ethanediyl)bis[8-[4-[2-[2-[2-(2-propenyloxy)ethoxy]ethoxy]ethoxy]phenyl]-1,10-phenanthroline-κN1,κN10]]-, (OC-6-33)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

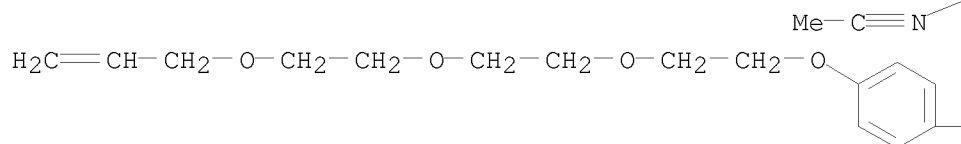
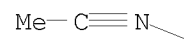
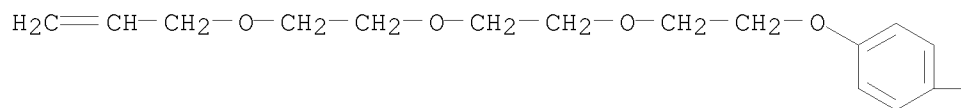
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CRN 552316-47-9

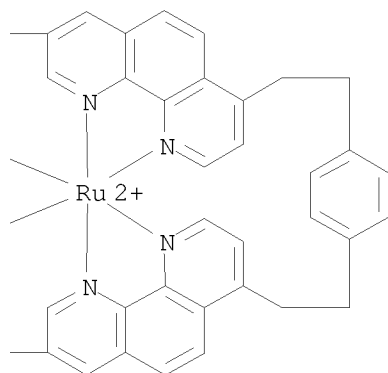
CMF C68 H72 N6 O8 Ru

CCI CCS

PAGE 1-A



PAGE 1-B



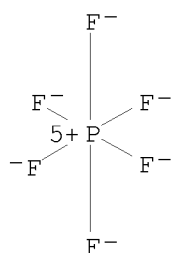
10/585,013

CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



IT 552316-46-8P

RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of ruthenium bipyridine- phenanthroline-polyether catenanes by ring-closing metathesis and subsequent selective photoinduced partial decomplexation)

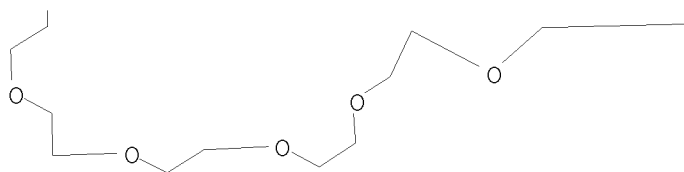
RN 552316-46-8 CAPLUS

CN Ruthenium(2+), bis(acetonitrile) (15,16,18,19,21,22,24,27,29,30,32,33,35,36,51,52,57,58-octadecahydro-10,13:38,41:53,56-trietheno-9,4,7:42,44,47-bis(methenonitrilomethyno) [1,4,7,10,15,18,21,24]octaoxacyclotetrapentacontino[34,35-c:45,44-c']dipyridine- $\kappa\text{N}3, \kappa\text{N}48, \kappa\text{N}62, \kappa\text{N}69$ )-, (OC-6-33)-, bis[hexafluorophosphate(1-)], catena compd. with 10,13,16,19,22,27,30,33,36,39-decaoxa-47,48-diazatricyclo[41.3.1.12,6]octatetraconta-1(47),2,4,6(48),24,43,45-heptaene (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 503089-54-1

CMF C36 H56 N2 O10



CM 2

CRN 552316-45-7

CMF C66 H68 N6 O8 Ru . 2 F6 P

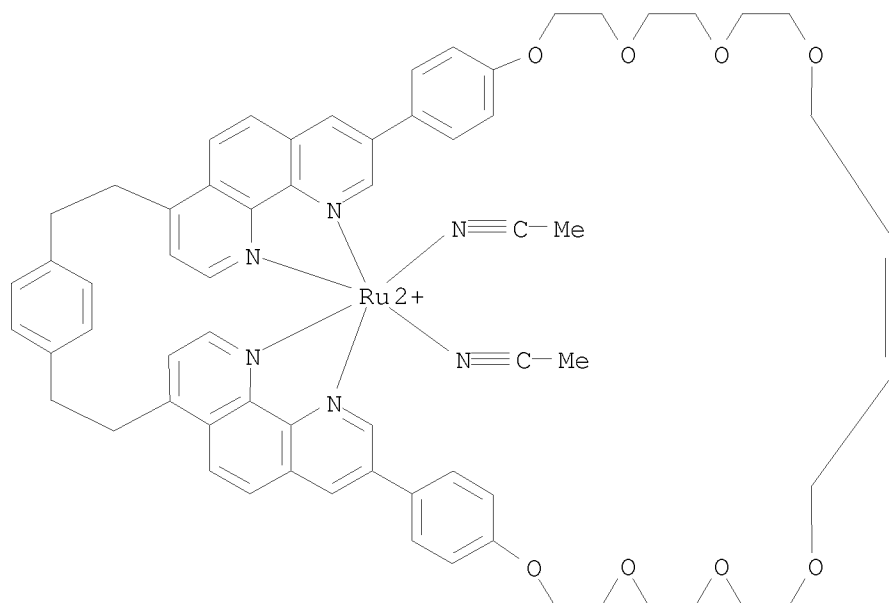
CM 3

CRN 552316-44-6

CMF C66 H68 N6 O8 Ru

CCI CCS

10/585,013

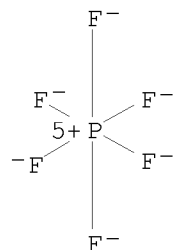


CM 4

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 33 THERE ARE 33 CAPLUS RECORDS THAT CITE THIS  
RECORD (34 CITINGS)  
REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 34 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 2003:336091 CAPLUS  
DOCUMENT NUMBER: 139:76198  
TITLE: Photostability of Luminescent Ruthenium(II) Complexes  
in Polymers and in Solution  
AUTHOR(S): Fuller, Z. J.; Bare, W. D.; Kneas, K. A.; Xu, W.-Y.;  
Demas, J. N.; DeGraff, B. A.  
CORPORATE SOURCE: Department of Chemistry, University of Virginia,  
Charlottesville, VA, 22904, USA  
SOURCE: Analytical Chemistry (2003), 75(11), 2670-2677  
CODEN: ANCHAM; ISSN: 0003-2700  
PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The effects of oxygen on the photochem. properties of ruthenium(II) complexes in solution and in polymers are reported. In solution, the complex is

actually protected from decomposition by the presence of oxygen as a result of deactivation of the complex by oxygen quenching before it can undergo ligand loss by monomol. dissociation; however, in polymers, the presence of oxygen increases photochem. decomposition. Singlet mol. oxygen, a product of the oxygen quenching process, may attack the ground state complex or triplet oxygen may directly attack the excited state of the complex. Both mechanisms may be involved in the photodestruction of the complex. The role of oxygen in the photodecompn. was examined by monitoring the photochem. decomposition of various complexes of different singlet oxygen reactivity, as well as absorption and mass spectroscopy studies. It is suggested that in polymers, unlike in solns., the newly formed reactive singlet oxygen is not able to diffuse away from the complex. The singlet oxygen, trapped in close proximity to the metal complex, has an enhanced opportunity to attack it. This cage effect is supported by studies using tris(1,10-phenanthroline)ruthenium(II) in poly(ethylene glycol) of increasing mol. weight to create an increasingly constraining cage around the complex. Increased poly(ethylene glycol) mol. weight leads to increased oxygen attack of the complex, supporting the cage effect.

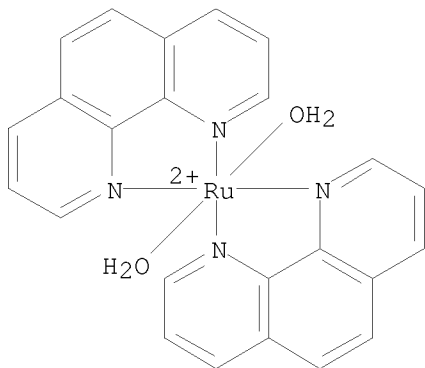
IT 146987-35-1 549521-08-6

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)

(photostability of luminescent ruthenium(II) complexes in polymers and in solution in relation to solvent viscosity effect)

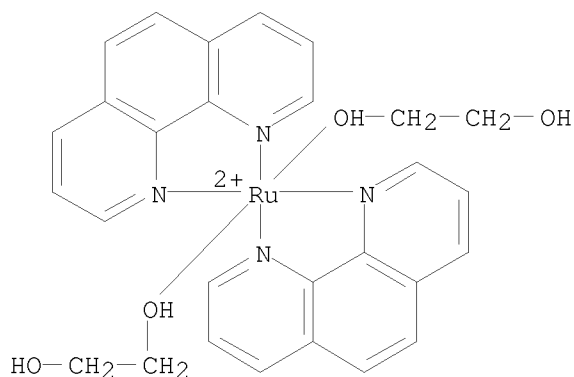
RN 146987-35-1 CAPLUS

CN Ruthenium(2+), diaquabis(1,10-phenanthroline-N1,N10)- (9CI) (CA INDEX NAME)



RN 549521-08-6 CAPLUS

CN Ruthenium(2+), bis(1,2-ethanediol-κO)bis(1,10-phenanthroline-κN1,κN10)- (CA INDEX NAME)



OS.CITING REF COUNT: 35 THERE ARE 35 CAPLUS RECORDS THAT CITE THIS RECORD (35 CITINGS)  
 REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 35 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 2003:210594 CAPLUS  
 DOCUMENT NUMBER: 139:175631  
 TITLE: Stability and catalytic properties of glucose oxidase from *Penicillium funiculosum* G-15  
 AUTHOR(S): Davydova, M. E.; Kurova, V. S.; Sukhacheva, M. V.; Kupletskaya, M. B.; Ryabov, A. D.; Netrusov, A. I.  
 CORPORATE SOURCE: Biol. Fak., Mosk. Gos. Univ. im. M. V. Lomonosova, Moscow, Russia  
 SOURCE: Vestnik Moskovskogo Universiteta, Seriya 2: Khimiya (2002), 43(6), 366-370  
 CODEN: VMUKA5; ISSN: 0579-9384  
 PUBLISHER: Izdatel'stvo Moskovskogo Universiteta  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian

AB Glucose oxidase isolated from a novel strain G-15 of *Penicillium funiculosum* was studied. The enzyme has high substrate specificity to D-glucose ( $K_m=3.3$  mM) and broad temperature- and pH-optimum. Electron transfer-mediating activity of Ru(II) complexes in catalysis of the *P. funiculosum* glucose oxidase was studied and compared with the activity of Ru(II) complexes to the *Aspergillus niger* glucose oxidase. A possibility of using the enzyme in amperometric biosensors is discussed.

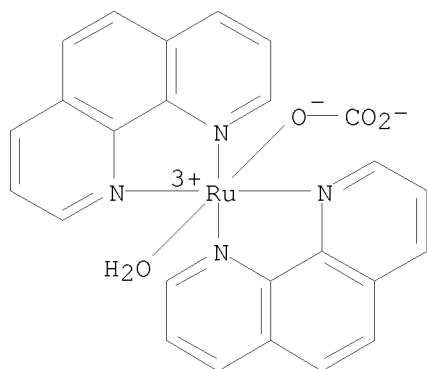
IT 577977-29-8  
 RL: BSU (Biological study, unclassified); BIOL (Biological study) (stability and catalytic properties of glucose oxidase from *Penicillium funiculosum* G-15, and electron transfer between Ru(II) complexes and glucose oxidase from *P. funiculosum* and *A. niger*)

RN 577977-29-8 CAPLUS

CN Ruthenium(1+), aqua[carbonato(2-)-κO]bis(1,10-phenanthroline-κN1,κN10)-, (OC-6-33)- (CA INDEX NAME)



10/585,013



OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD  
(2 CITINGS)

L6 ANSWER 36 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2003:147241 CAPLUS

DOCUMENT NUMBER: 138:394920

TITLE: Macrocyclic complexes of [Ru(N-N)<sub>2</sub>]<sup>2+</sup> units [N-N =  
1,10 phenanthroline or  
4-(p-anisyl)-1,10-phenanthroline]: Synthesis and  
photochemical expulsion studies

AUTHOR(S): Laemmel, Anne-Chantal; Collin, Jean-Paul; Sauvage,  
Jean-Pierre; Accorsi, Gianluca; Armaroli, Nicola

CORPORATE SOURCE: Laboratoire de Chimie Organo-minerale, Institut Le  
Bel, Universite Louis Pasteur, Strasbourg, 67 070, Fr.

SOURCE: European Journal of Inorganic Chemistry (2003), (3),  
467-474

CODEN: EJICFO; ISSN: 1434-1948

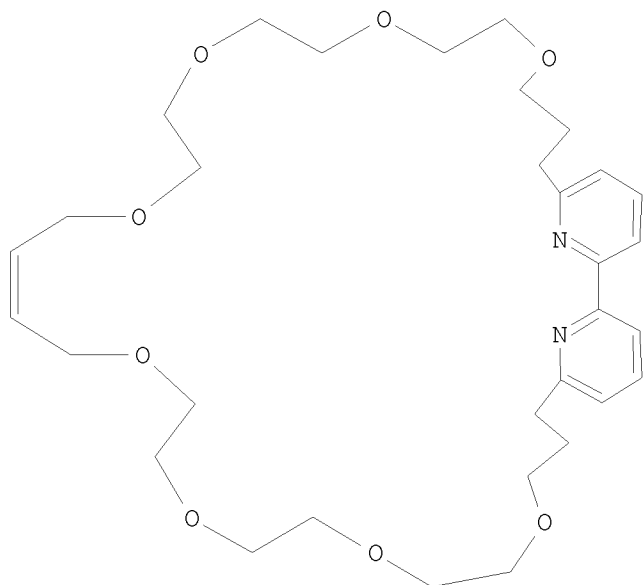
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 138:394920

GI



I

AB Two Ru complexes  $[\text{Ru}(\text{phen})_2(\text{m-36})]^{2+}$  (1) and  $[\text{Ru}(\text{aphen})_2(\text{m-36})]^{2+}$  (2), which contain a 36-membered macrocycle incorporating a sterically hindered bipyridine (I = m-36), and two 1,10-phenanthroline (phen) or 4-(p-anisyl)-1,10-phenanthroline (aphen) ligands, were synthesized. Under light irradiation, as seen from the metal-to-ligand-charge-transfer (MLCT) bands of the visible spectral region, the  $[\text{Ru}(\text{phen})]^{2+}$  core of 1 and 2 is selectively expelled from the macrocycle to give the corresponding bis-MeCN derivative. This photochem. process is notably less efficient than that observed in a simpler related complex  $[\text{Ru}(\text{phen})_2\text{dmbp}]^{2+}$  (dmbp = 6,6'-dimethyl-2,2'-bipyridine), that lacks the macrocyclic motif. For 1, thermal back reaction takes place quant. affording a completely reversible system. The chromatog. isolation of the axial-axial  $\text{cis}[(a,a)\text{Ru}(\text{aphen})_2\text{Cl}_2]$  isomer, where the two aphen ligands bear two p-anisyl groups disposed trans to one another enabled the preparation of 2. This type of complex undergoes a more complicated photochem. process, in fact, following the expected photolabilization of the  $[\text{Ru}(\text{aphen})_2]^{2+}$  unit, photoisomerization of the primary photo-product occurs and gives a statistical mixture of the three geometrical isomers:  $\text{cis}[(a,a)\text{Ru}(\text{aphen})_2(\text{MeCN})_2](\text{PF}_6)_2$ ,  $\text{cis}[(a,e)\text{Ru}(\text{aphen})_2(\text{MeCN})_2](\text{PF}_6)_2$  and  $\text{cis}[(e,e)\text{Ru}(\text{aphen})_2(\text{MeCN})_2](\text{PF}_6)_2$ . This side-reaction precludes its use as rotaxane precursor suggesting that, for this purpose, a bis-phenanthroline ligand stabilizing the Ru core is needed.

IT 85370-15-6,  $\text{cis-Bis}(\text{acetonitrile})\text{bis}(1,10\text{-phenanthroline})\text{ruthenium}(2+)\text{ bis}(\text{hexafluorophosphate})$   
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (for preparation of ruthenium phenanthroline complexes with polyoxa-bipyridine macrocycle)

RN 85370-15-6 CAPLUS

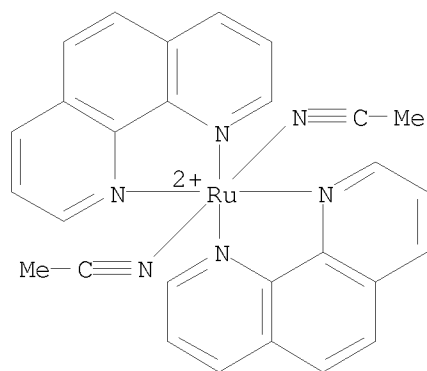
CN Ruthenium(2+),  $\text{bis}(\text{acetonitrile})\text{bis}(1,10\text{-phenanthroline-}\kappa\text{N1},\kappa\text{N10})\text{-, (OC-6-22)-, bis}[\text{hexafluorophosphate}(1-)]$  (9CI)  
 (CA INDEX NAME)

CM 1

CRN 85370-14-5

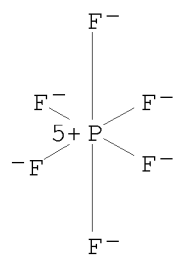
10/585,013

CMF C28 H22 N6 Ru  
CCI CCS



CM 2

CRN 16919-18-9  
CMF F6 P  
CCI CCS

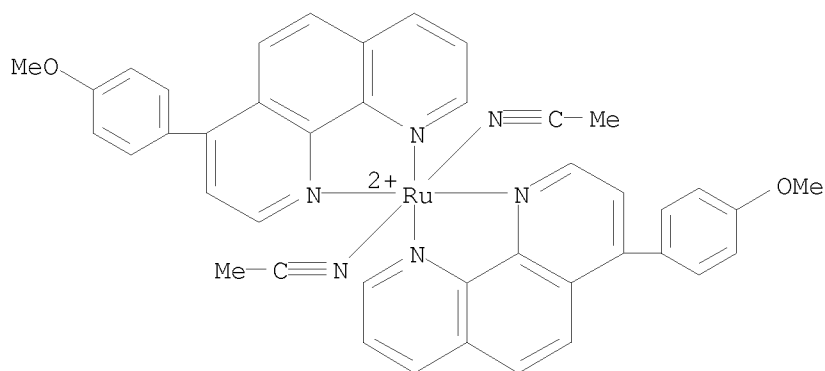


IT 527677-74-3P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(for preparation of ruthenium phenanthroline complexes with  
polyoxa-bipyridine macrocycle)  
RN 527677-74-3 CAPLUS  
CN Ruthenium(2+), bis(acetonitrile)bis[4-(4-methoxyphenyl)-1,10-  
phenanthroline- $\kappa$ N1, $\kappa$ N10]-, (OC-6-33)-,  
bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 527677-73-2  
CMF C42 H34 N6 O2 Ru  
CCI CCS

10/585,013

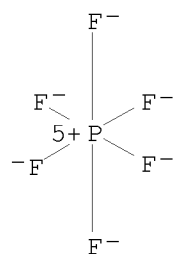


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 15 THERE ARE 15 CAPLUS RECORDS THAT CITE THIS RECORD (15 CITINGS)  
REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 37 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 2003:67342 CAPLUS  
DOCUMENT NUMBER: 138:280340  
TITLE: A [2]Catenane Constructed around a Ru(Diimine)2+3 Complex Used as a Template  
AUTHOR(S): Mobian, Pierre; Kern, Jean-Marc; Sauvage, Jean-Pierre  
CORPORATE SOURCE: Laboratoire de Chimie Organo-Minérale UMR 7513 du CNRS, Université Louis Pasteur, Strasbourg, 67070, Fr.  
SOURCE: Journal of the American Chemical Society (2003), 125(8), 2016-2017  
CODEN: JACSAT; ISSN: 0002-7863  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 138:280340  
GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB A [2]catenane was constructed using an octahedral complex of the Ru(diimine)<sub>3</sub><sup>2+</sup> family as a scaffold. Two diimine chelates were incorporated in a ring prior to the Ru(II) complexation reaction. The macrocyclic complex [Ru(I)(NCMe)<sub>2</sub>](PF<sub>6</sub>)<sub>2</sub> thus obtained was subsequently threaded by a long linear fragment containing the 3rd chelate. The Ru(II)-complexed catenane, cyclized by ring-closing metathesis, is the 1st example of an interlocking ring system built around an octahedral tris-chelate complex. Thus [Ru(I)(II)](PF<sub>6</sub>)<sub>2</sub> (R = OCH<sub>2</sub>(CH<sub>2</sub>OCH<sub>2</sub>)<sub>4</sub>CH<sub>2</sub>O) was prepared

IT 503089-45-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and reactant for preparation of ruthenium complex with hexaoxa macrocycles containing bipyridine and phenanthroline)

RN 503089-45-0 CAPLUS

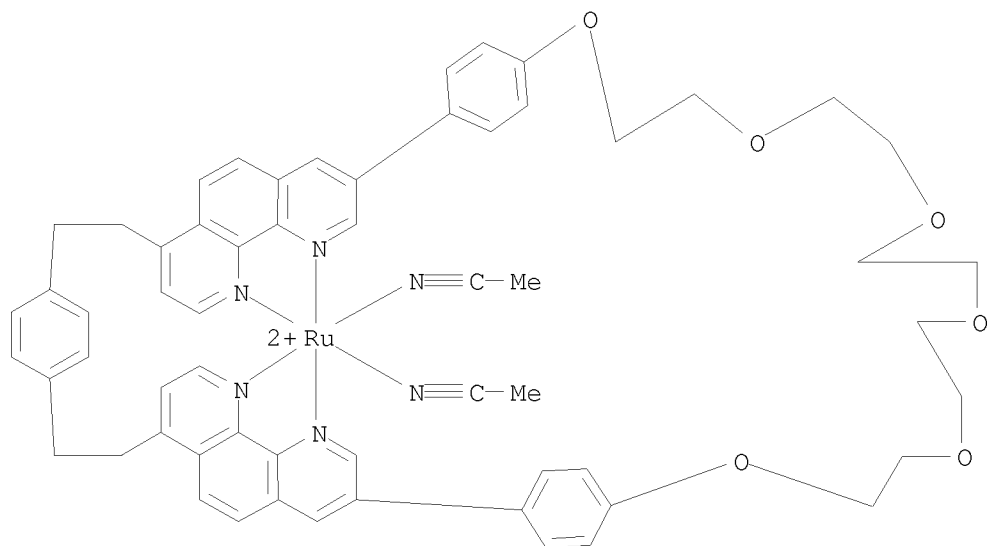
CN Ruthenium(2+), bis(acetonitrile)(15,16,18,19,21,22,24,25,27,28,43,44,49,50-tetradecahydro-10,13:30,33:45,48-trietheno-9,4,7:34,36,39-bis(methenonitrilomethyno)[1,4,7,10,13,16]hexaoxacyclohexatetracontino[26,27-c:37,36-c']dipyridine-κN3,κN40,κN54,κN61)-, (OC-6-33)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 503089-44-9

CMF C60 H58 N6 O6 Ru

CCI CCS

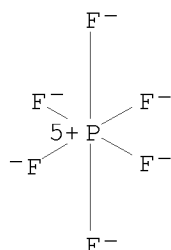


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 60 THERE ARE 60 CAPLUS RECORDS THAT CITE THIS  
RECORD (60 CITINGS)  
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 38 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 2003:14411 CAPLUS  
DOCUMENT NUMBER: 138:76118  
TITLE: Metal complex dye, photoelectrode, and dye-sensitized  
solar cell  
INVENTOR(S): Tanaka, Hiromitsu; Shiozawa, Masato; Usuki, Arimitsu;  
Yamamoto, Takashi; Toyota, Tatsuo; Fukumoto, Shungo;  
Ito, Mutsumi  
PATENT ASSIGNEE(S): Toyota Central Research and Development Laboratories,  
Inc., Japan; Aisin Seiki Co., Ltd.  
SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

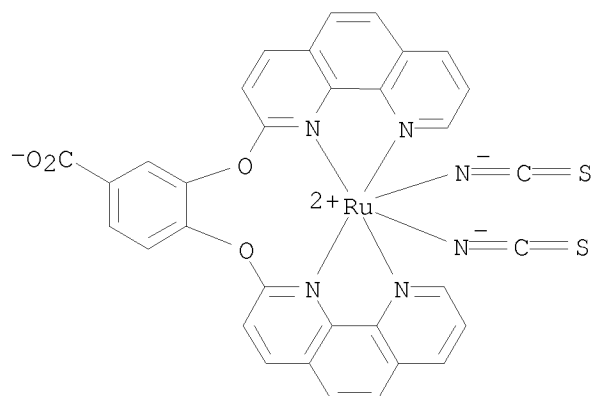
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003003083	A	20030108	JP 2001-186985	20010620
JP 4127755	B2	20080730		
PRIORITY APPLN. INFO.:			JP 2001-186985	20010620
OTHER SOURCE(S):	MARPAT 138:76118			

AB The claimed metal complex dye has a hexacoordinated center metal or metal ion, a tetradentate ligand containing  $\geq 1$  CO<sub>2</sub>H, and 2 TCN groups, where the tetradentate ligand comprises 2 of bidentate ligands selected from 1,10-phenanthroline, 1,10-phenanthroline derivs., 2,2'-bipyridyl, and 2,2'-bipyridyl derivs. bonded via divalent group. The title photoelectrode comprises a semiconductor electrode having a light-receiving face and a neighboring transparent electrode, where the semiconductor electrode contains the above dye for sensitizing. The electrode has high photoelec. conversion efficiency and the resulting solar cell provides high energy conversion efficiency for long time.

IT 480442-97-5P  
RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)  
(dye; metal complex dye for photoelectrode in dye-sensitized solar cell)

RN 480442-97-5 CAPLUS

CN Ruthenate(1-), [3,4-bis[(1,10-phenanthroline-2-yl)- $\kappa$ N1, $\kappa$ N10]oxy]benzoato]bis(thiocyanato- $\kappa$ N)-, hydrogen  
(9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
(1 CITINGS)

L6 ANSWER 39 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2002:927860 CAPLUS

DOCUMENT NUMBER: 138:12491

TITLE: Microelectronic system and method of use and fabrication

INVENTOR(S): Weng, Tsu-Tseng; Chen, Jenn-Han; Ho, Ching

PATENT ASSIGNEE(S): Taiwan

SOURCE: U.S. Pat. Appl. Publ., 15 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20020179439	A1	20021205	US 2001-871209	20010531

PRIORITY APPLN. INFO.: US 2001-871209 20010531

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The invention provides a microelectronic system, which can actively carry out and control mol. biol. reactions in microscopic formats. The microelectronic system is accomplished by using electrochem. detection for bulge sites in binding pairs, in order to enhance sensitivity without marking the probe with reporter groups. Together with elec. stringency control, the method can be fully automated with min. sample preparation. The present invention is especially useful for diagnosing base pair mismatches in target sequences by using specific metal complexes for detection.

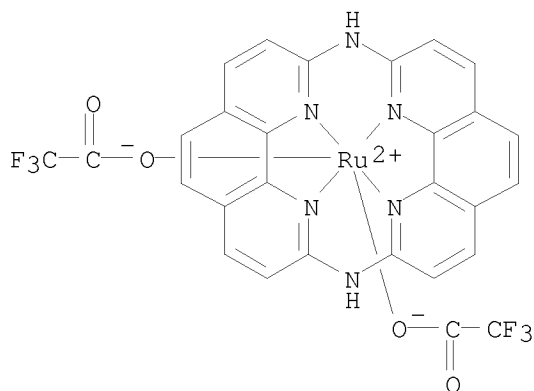
IT 477561-17-4

RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
(electron transfer mediator; microelectronic system and method of use and fabrication)

RN 477561-17-4 CAPLUS

CN Ruthenium, (7,16-dihydro-1,17:4,6:8,10:13,15-tetraethenodibenzo[f,m][1,3,5,8,10,12]hexaazacyclotetradecine-κN5,κN9,κN14,κN18)bis(trifluoroacetato-κO)-,

(OC-6-12)- (9CI) (CA INDEX NAME)



L6 ANSWER 40 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2002:789435 CAPLUS

DOCUMENT NUMBER: 138:32352

TITLE: Trans Ruthenium(II) Complexes with NH-Bridged Tetradentate Symmetric and Asymmetric Polypyridyl Ligands

AUTHOR(S): Concepcion, Javier; Just, Oliver; Leiva, Ana Maria; Loeb, Barbara; Rees, William S., Jr.

CORPORATE SOURCE: Facultad de Quimica, Pontificia Universidad Catolica de Chile, Santiago, Chile

SOURCE: Inorganic Chemistry (2002), 41(23), 5937-5939

CODEN: INOCAJ; ISSN: 0020-1669

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 138:32352

AB NH-Bridged tetradentate ligands were synthesized to achieve stable trans Ru(II) bis(polypyridyl) complexes. The polypyridyl part of the ligand was either sym., as in N,N-bis(1,10-phenanthroline-2-yl)amine (phen-NH-phen), or asym., as in N-(1,10-phenanthroline-2-yl)-N-(6-yl-dipyridyl[2,3-a:2',3'-c]phenazine)amine (dppz-NH-phen). Protonation of phen-NH-phen with HO<sub>2</sub>CCF<sub>3</sub> and the subsequent reaction with RuCl<sub>3</sub> yield trans-[Ru(phen-NH-phen)Cl<sub>2</sub>]. The chloro ligands in this compound can easily be replaced by stronger ligands, such as MeCN and DMSO. In this way, complexes trans-[Ru(phen-NH-phen)(MeCN)(DMSO)](PF<sub>6</sub>)<sub>2</sub> (1), trans-[Ru(phen-NH-phen)(DMSO)<sub>2</sub>](PF<sub>6</sub>)<sub>2</sub> (2), and trans-[Ru(phen-NH-phen)(MeCN)<sub>2</sub>](PF<sub>6</sub>)<sub>2</sub> (3) were obtained. X-ray structures were determined for 1 and 3. Following a procedure similar to that used with phen-NH-phen, trans-[Ru(dppz-NH-phen)(MeCN)<sub>2</sub>](PF<sub>6</sub>)<sub>2</sub> (4) was obtained. To the authors' knowledge, this is the 1st reported trans Ru(II) bis(polypyridyl) complex with two different polypyridyl ligands in the equatorial plane.

IT 478035-06-2P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation)

RN 478035-06-2 CAPLUS

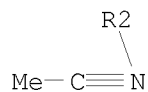
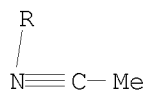
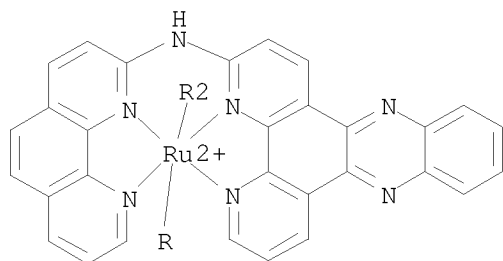
CN Ruthenium(2+), bis(acetonitrile) [N-(1,10-phenanthroline-2-yl)-κN1,κN10]dipyrido[3,2-a:2',3'-c]phenazine-3-amine-κN4,κN5]-, (OC-6-15)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)



10/585,013

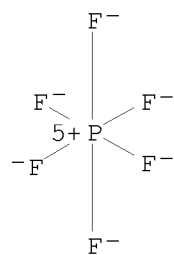
CM 1

CRN 478035-05-1  
CMF C34 H23 N9 Ru  
CCI CCS



CM 2

CRN 16919-18-9  
CMF F6 P  
CCI CCS

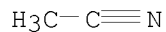


IT 478035-04-0P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and crystal structure)  
RN 478035-04-0 CAPLUS  
CN Ruthenium(2+), bis(acetonitrile) [N-(1,10-phenanthroline-2-yl-  
κN1,κN10)-1,10-phenanthroline-2-amine-κN1,κN10]-,  
(OC-6-13)-, bis[hexafluorophosphate(1-)], compd. with acetonitrile (1:2)  
(9CI) (CA INDEX NAME)

CM 1

10/585,013

CRN 75-05-8  
CMF C2 H3 N



CM 2

CRN 478035-03-9  
CMF C28 H21 N7 Ru . 2 F6 P

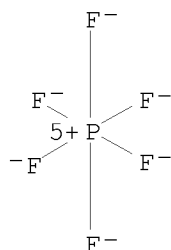
CM 3

CRN 478035-02-8  
CMF C28 H21 N7 Ru  
CCI CCS

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 4

CRN 16919-18-9  
CMF F6 P  
CCI CCS



OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 41 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2002:736594 CAPLUS

DOCUMENT NUMBER: 137:250320

TITLE: Process for fabrication of dye-sensitized photovoltaic solar cell

INVENTOR(S): Chiba, Yasuo; Shimizu, Masafumi; Han, Liyuan; Yamanaka, Ryohsuke

PATENT ASSIGNEE(S): Sharp Kabushiki Kaisha, Japan

SOURCE: U.S. Pat. Appl. Publ., 16 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20020134426	A1	20020926	US 2002-58060	20020129
US 6677516	B2	20040113		
JP 2002222971	A	20020809	JP 2001-19585	20010129
JP 2003217688	A	20030731	JP 2002-10153	20020118
JP 4185285	B2	20081126		

PRIORITY APPLN. INFO.: JP 2001-19585 A 20010129  
JP 2002-10153 A 20020118

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

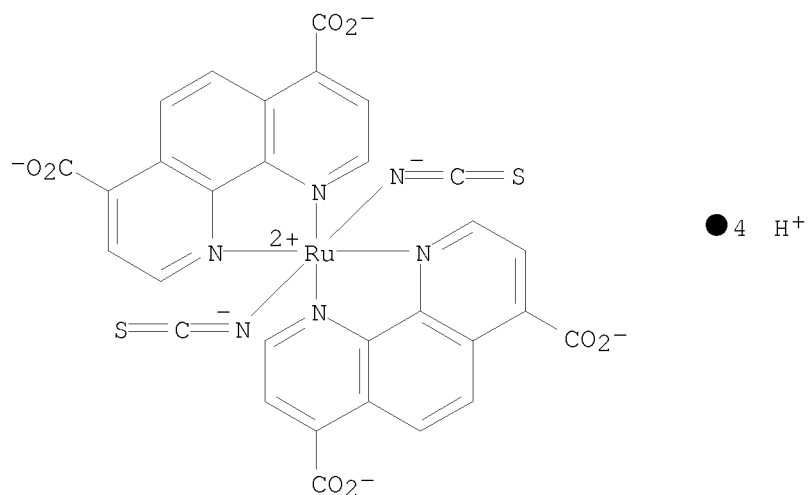
AB A dye-sensitized photovoltaic cell comprises an electroconductive support, a porous photovoltaic layer constituted with a porous semiconductor layer containing a photosensitizing dye, a hole transporting layer, and a support on a counter electrode side, the porous photovoltaic layer having a multilayer structure, and the semiconductor layer having a haze ratio at a wavelength in a visible light region of 60% or more.

IT 214000-95-0

RL: MOA (Modifier or additive use); USES (Uses)  
(process for fabrication of dye-sensitized photovoltaic solar cell)

RN 214000-95-0 CAPLUS

CN Ruthenate(4-), bis[1,10-phenanthroline-4,7-dicarboxylato(2-)- $\kappa$ N1, $\kappa$ N10]bis(thiocyanato- $\kappa$ N)-, tetrahydrogen, (OC-6-21)-(9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 16 THERE ARE 16 CAPLUS RECORDS THAT CITE THIS RECORD (21 CITINGS)

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 42 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2002:315269 CAPLUS

DOCUMENT NUMBER: 136:343317

TITLE: Power generating method and photoelectrochemical cell

INVENTOR(S): Sotomura, Tadashi

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan

SOURCE: PCT Int. Appl., 49 pp.  
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002033775	A1	20020425	WO 2001-JP8029	20010914
W: CN, JP, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
EP 1333524	A1	20030806	EP 2001-967690	20010914
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
CN 1207813	C	20050622	CN 2001-803161	20010914
JP 3690681	B2	20050831	JP 2002-536665	20010914
KR 814572	B1	20080317	KR 2002-7005844	20020506
US 20030082437	A1	20030501	US 2002-130829	20020523
US 6916576	B2	20050712		
JP 2005056856	A	20050303	JP 2004-268277	20040915
US 20050221169	A1	20051006	US 2005-135283	20050524
US 7115338	B2	20061003		

## PRIORITY APPLN. INFO.:

JP 2000-316459	A	20001017
JP 2001-156641	A	20010525
JP 2002-536665	A3	20010914
WO 2001-JP8029	W	20010914
US 2002-130829	A1	20020523

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB Power is generated using a photoelectrochem. cell, having an electrolyte between a cathode and an anode, with the anode and/or the electrolyte containing mols. capable of electrochem. oxidizing carbohydrates by absorbing light, by supplying the carbohydrate while illuminating the mols.

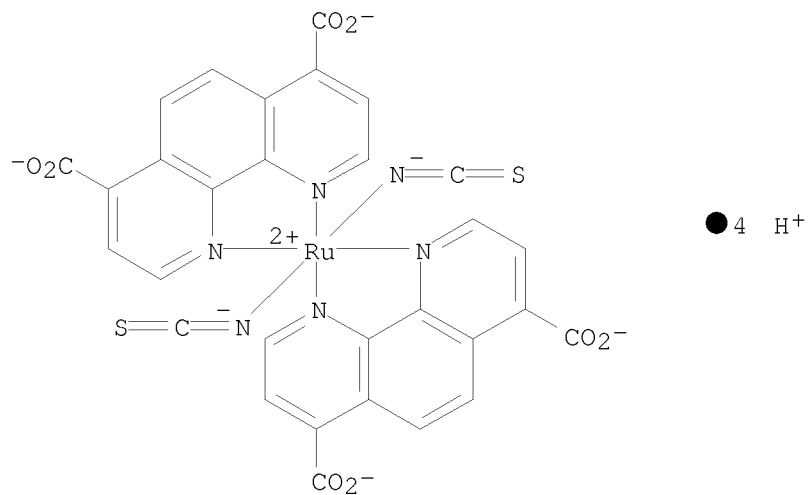
IT 214000-95-0

RL: DEV (Device component use); USES (Uses)

(photoelectrochem. cells with electrolytes and anodes containing light activating carbohydrate oxidizing mols. for power generation)

RN 214000-95-0 CAPLUS

CN Ruthenate(4-), bis[1,10-phenanthroline-4,7-dicarboxylato(2-)- $\kappa$ N1, $\kappa$ N10]bis(thiocyanato- $\kappa$ N)-, tetrahydrogen, (OC-6-21)-(9CI) (CA INDEX NAME)



OS.CITING REF COUNT:

4

THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD  
(4 CITINGS)

10/585,013

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 43 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2002:300000 CAPLUS

DOCUMENT NUMBER: 137:162758

TITLE: Synthesis, spectra and crystal structures of two RuII complexes with polypyridyl ligands:  
cis-[Ru(bpy)2(4,4'-bpy)Cl](PF6)·H2O and  
cis-[Ru(phen)2(CH3CN)2](PF6)2

AUTHOR(S): Du, Miao; Ge, Xiao-Jing; Liu, He; Bu, Xian-He

CORPORATE SOURCE: Department of Chemistry, Nankai University, Tianjin, 300071, Peop. Rep. China

SOURCE: Journal of Molecular Structure (2002), 610(1-3), 207-213

CODEN: JMOSB4; ISSN: 0022-2860

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 137:162758

AB Two mononuclear RuII complexes of polypyridyl ligands, cis-[Ru(bpy)2(4,4'-bpy)Cl](PF6)·H2O (1) and cis-[Ru(phen)2(MeCN)2](PF6)2 (2) (bpy = 2,2'-bipyridyl, 4,4'-bpy = 4,4'-bipyridyl, and phen = 1,10-phenanthroline), were synthesized and characterized by elemental analyses, IR and UV-visible spectra. The crystal structures of both complexes were determined by x-ray diffraction, indicating that each RuII center is hexacoordinated (RuN5Cl for 1 and RuN6 for 2) and takes a distorted octahedral geometry. The favored feature of both complexes is that they are quite useful complex precursors for further constructing new functional architectures.

IT 85370-15-6P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and crystal structure)

RN 85370-15-6 CAPLUS

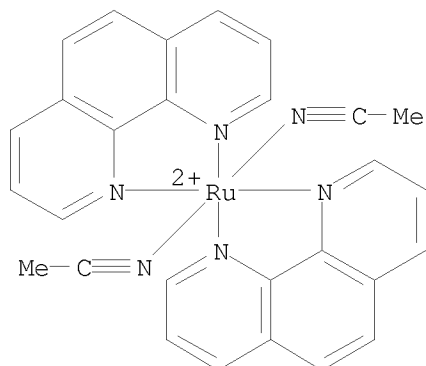
CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-, (OC-6-22)-, bis[hexafluorophosphate(1-)] (9CI)  
(CA INDEX NAME)

CM 1

CRN 85370-14-5

CMF C28 H22 N6 Ru

CCI CCS

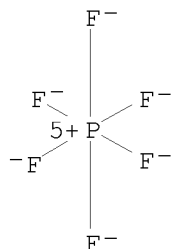


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 44 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2002:266062 CAPLUS

DOCUMENT NUMBER: 137:12264

TITLE: Electrochemical analysis of the coordination sphere of ruthenium(II) as electron transfer mediator in glucose oxidase catalysis in aqueous solutions

AUTHOR(S): Kurova, V. S.; Ershov, A. Yu.; Ryabov, A. D.

CORPORATE SOURCE: Department of Chemistry, Moscow State University, Moscow, 119899, Russia

SOURCE: Russian Chemical Bulletin (Translation of Izvestiya Akademii Nauk, Seriya Khimicheskaya) (2001), 50(10), 1849-1854

CODEN: RCBUEY; ISSN: 1066-5285

PUBLISHER: Kluwer Academic/Consultants Bureau

DOCUMENT TYPE: Journal

LANGUAGE: English

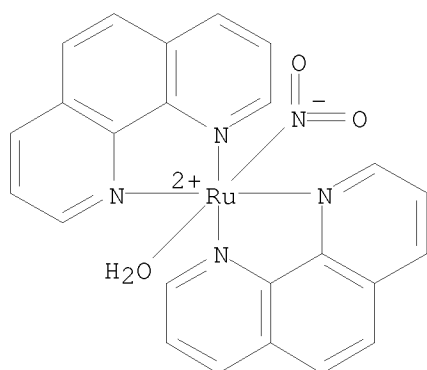
AB The redox potentials of the cis-[Ru(LL)2XY]<sup>n+</sup> complexes (LL = 2,2'-bipyridyl (bpy), 1,10-phenanthroline (phen), and 4,4'-dimethyl-2,2'-bipyridyl (Me2bpy); X, Y = Cl<sup>-</sup>, Br<sup>-</sup>, CO<sub>3</sub><sup>2-</sup>, NO<sub>2</sub><sup>-</sup>, SCN<sup>-</sup>, N<sub>3</sub><sup>-</sup>, H<sub>2</sub>O, and DMSO) in aqueous buffer solns. were measured and analyzed in the framework of the Lever theory on the additivity of contributions of ligands (EL) to the apparent redox potential of (Eo'). The complexes manifest the properties of reversible or quasireversible redox systems, whose formal redox potentials lie in the 0.2-0.5 V range. The complexes are efficient electron transfer mediators between the active center of glucose oxidase (GO) from *Aspergillus niger* and an electrode.

IT 432493-56-6

RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent) (redox potential and kinetics of electron exchange: electrochem. anal. of coordination sphere of ruthenium(II) as electron transfer mediator in glucose oxidase catalysis in aqueous solns.)

RN 432493-56-6 CAPLUS

CN Ruthenium(1+), aqua(nitrito-κN)bis(1,10-phenanthroline-κN1,κN10)-, (OC-6-33)- (CA INDEX NAME)



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)  
 REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 45 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 2002:193351 CAPLUS  
 DOCUMENT NUMBER: 136:250257  
 TITLE: Dye-adsorbed semiconductor, photoelectric conversion device using it, and solar cell using the device  
 INVENTOR(S): Okubo, Kimihiko; Kita, Hiroshi  
 PATENT ASSIGNEE(S): Konica Co., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 34 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

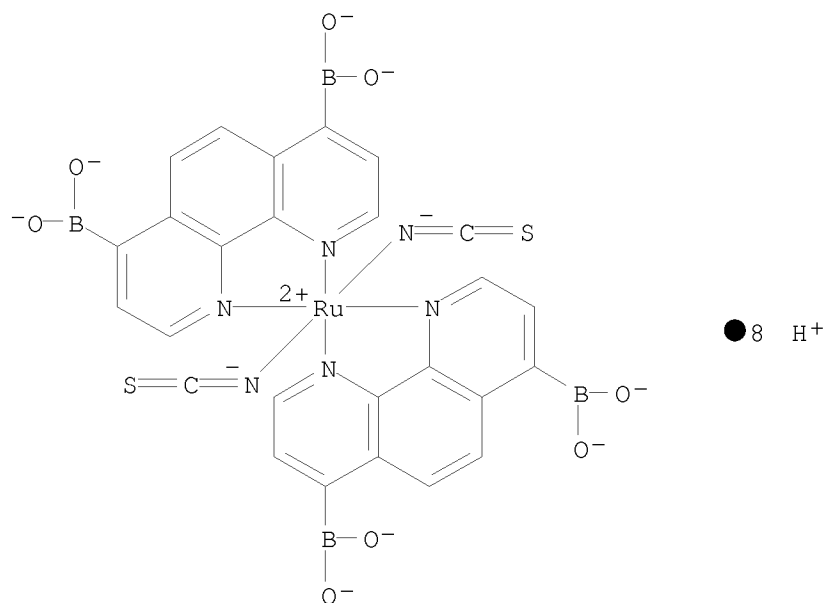
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002075475	A	20020315	JP 2000-257211	20000828
PRIORITY APPLN. INFO.:			JP 2000-257211	20000828
OTHER SOURCE(S): MARPAT 136:250257				

AB The semiconductor adsorbs a dye D[LB(ORa)n]k (D = dye residue; k = 1-10; L = none, divalent linkage group; Ra = H, substituent; n = 2, 3; B = anion if n = 3 to have counter cation). The photoelec. conversion device comprises an elec. conductive support laminated with a photosensitive layer containing the above dye-adsorbed semiconductor. The solar cell has the above photoelec. conversion device, a charge-transfer layer, and a counter electrode. The solar cell shows improved durability and high photoelec. conversion efficiency.

IT 403845-23-8  
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)  
 (photoelec. conversion device having photosensitive layer containing dye-adsorbed semiconductor for solar cell)

RN 403845-23-8 CAPLUS

CN Ruthenate(8-), bis[[[(1,10-phenanthroline-4,7-diyl-κN1,κN10)bis[boronato]](4-)]bis(thiocyanato-κN)-, octahydrogen, (OC-6-21)-(9CI) (CA INDEX NAME)



L6 ANSWER 46 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2002:116449 CAPLUS

DOCUMENT NUMBER: 136:318359

TITLE: Photochemical or Thermal Chelate Exchange in the Ruthenium Coordination Sphere of Complexes of the Ru(phen)2L Family (L = Diimine or Dinitrile Ligands)

AUTHOR(S): Baranoff, Etienne; Collin, Jean-Paul; Furusho, Junko; Furusho, Yoshio; Laemmel, Anne-Chantal; Sauvage, Jean-Pierre

CORPORATE SOURCE: Laboratoire de Chimie Organo-Minérale Faculté de Chimie, UMR 7513 du CNRS Université Louis Pasteur, Strasbourg, 67070, Fr.

SOURCE: Inorganic Chemistry (2002), 41(5), 1215-1222

CODEN: INOCAJ; ISSN: 0020-1669

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 136:318359

AB Complexes Ru(phen)2L<sup>2+</sup>, where L is a substituted bipyridine family member (3,3-di-Me-, 6,6'-di-Me-, 6,6'-di-Cl-2,2'-bipyridine; 2,2'-biquinoline, bisoquinoline) were prepared, and their photochem. substitution reactions were studied. In the presence of a bis-benzonitrile derivs. (bis(2-cyanophenoxy)alkanes), acting as bidentate chelates, photoexpulsion of L was performed under the action of visible light, with quant. formation of new complexes Ru(phen)2L'<sup>2+</sup> (L' = bis-nitrile ligand). Several complexes were characterized by x-ray crystallog. In particular, the bis-benzonitrile complexes could be crystallized, and the structure of these compds., containing a 13-, 14-, or 15-membered metal incorporating ring, was obtained. By heating Ru(phen)2L'<sup>2+</sup> with a bipy derivative in refluxing ethylene glycol, quant. formation of the starting complex [Ru(phen)2L<sup>2+</sup>] was carried out. The present series of compds. presents properties that could be profitably used in the design and construction of multicomponent systems acting as photochem. driven mol. machines.

IT 85370-15-6, cis-Bis(acetonitrile)bis(1,10-phenanthroline)ruthenium(2+) bis(hexafluorophosphate)



10/585,013

RL: RCT (Reactant); RACT (Reactant or reagent)  
(substitution reactions with bis(cyanophenoxy)alkanes)

RN 85370-15-6 CAPLUS

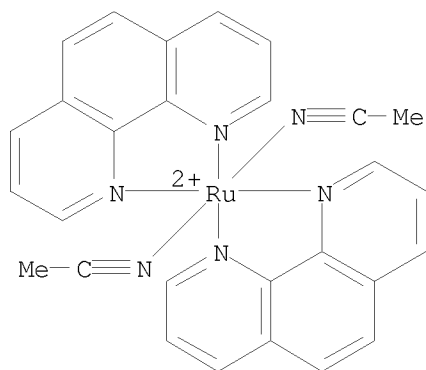
CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-  
κN1,κN10)-, (OC-6-22)-, bis[hexafluorophosphate(1-)] (9CI)  
(CA INDEX NAME)

CM 1

CRN 85370-14-5

CMF C28 H22 N6 Ru

CCI CCS

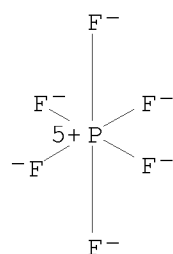


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 33 THERE ARE 33 CAPLUS RECORDS THAT CITE THIS  
RECORD (33 CITINGS)  
REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 47 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2001:918080 CAPLUS

DOCUMENT NUMBER: 136:219484

TITLE: Effect of the ligand structure on the efficiency of  
electron injection from excited Ru-phenanthroline  
complexes to nanocrystalline TiO2 films

AUTHOR(S): Hara, Kohjiro; Horiuchi, Hiroaki; Katoh, Ryuzi; Singh,

CORPORATE SOURCE: Lok Pratap; Sugihara, Hideki; Sayama, Kazuhiro;  
Murata, Shigeo; Tachiya, M.; Arakawa, Hironori  
Photoreaction Control Research Center, National  
Institute of Advanced Industrial Science and  
Technology (AIST), Tsukuba, Ibaraki, 305-8565, Japan  
SOURCE: Journal of Physical Chemistry B (2002), 106(2),  
374-379  
CODEN: JPCBFK; ISSN: 1089-5647  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English

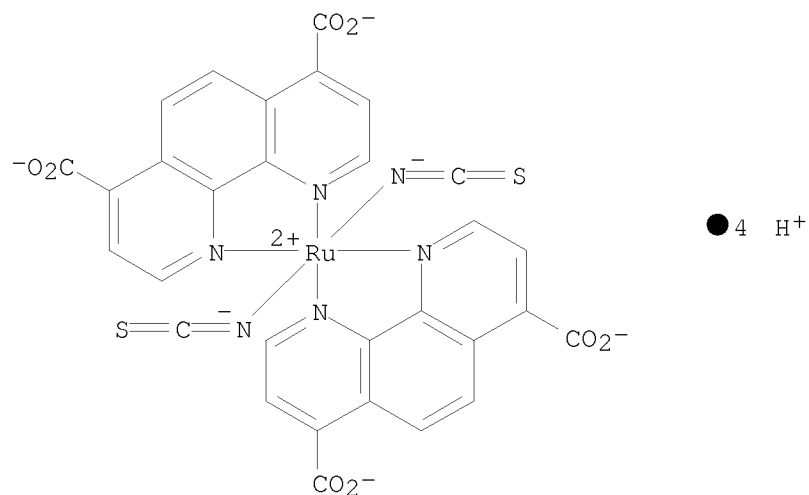
AB We previously reported that the number of anchoring carboxyl groups affects the solar cell performance of dye-sensitized nanocryst. TiO<sub>2</sub> solar cells using Ru-phenanthroline complexes as the sensitizer. To understand the mechanism in detail, the electron injection efficiency of sensitizing dyes adsorbed on nanocryst. TiO<sub>2</sub> films has been studied by transient absorption spectroscopy. The efficiency of electron injection is strongly affected by the number of carboxyl groups of the sensitizing dye, i.e., the efficiency of cis-bis(4,7-dicarboxy-1,10-phenanthroline)dithiocyanato ruthenium(II) (with four carboxyl groups) adsorbed on nanocryst. TiO<sub>2</sub> films (DCP2/TiO<sub>2</sub>) being 4 times as large as that of cis-(4-monocarboxy-1,10-phenanthroline)(1,10-phenanthroline)dithiocyanato ruthenium(II) (with one carboxyl group) adsorbed on the same films (MCP2/TiO<sub>2</sub>). From the anal. of the time profile of the transient absorption, we conclude that the low efficiency of MCP2/TiO<sub>2</sub> is due to the presence of inactive dyes on the TiO<sub>2</sub> surface, which are not effective for electron injection. By comparing the absorbed photon-to-current conversion efficiencies (APCE) of the solar cells using these films, the effect of the number of the carboxyl groups on the solar cell performance can be attributed to the effect on the injection efficiency of electrons. We have also studied the effect of substitution of the counteranions of DCP2. Two protons of carboxyl groups were substituted by two tetrabutylammonium (TBA) ions. The APCE of the DCP2-TBA is higher than that of DCP2, although the relative efficiencies of electron injection are similar for DCP2-TBA and DCP2. This indicates that the rate of reaction of the conducting electrons in the TiO<sub>2</sub> film with the I<sup>-</sup>/I<sub>3</sub><sup>-</sup> redox mediators (dark current) is reduced by substituting the protons by TBA ions.

IT 214000-95-0 374772-02-8  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(effect of ligand structure on efficiency of electron injection from  
excited Ru-phenanthroline complexes to nanocryst. TiO<sub>2</sub> films)

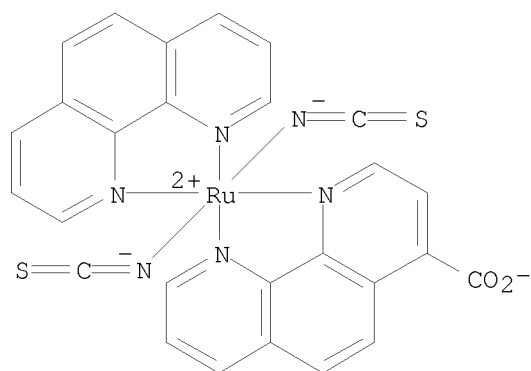
RN 214000-95-0 CAPLUS

CN Ruthenate(4-), bis[1,10-phenanthroline-4,7-dicarboxylato(2-)-  
κN1,κN10]bis(thiocyanato-κN)-, tetrahydrogen, (OC-6-21)-  
(9CI) (CA INDEX NAME)

10/585,013



RN 374772-02-8 CAPLUS  
CN Ruthenate(1-), (1,10-phenanthroline-κN1,κN10) (1,10-phenanthroline-4-carboxylato-κN1,κN10)bis(thiocyanato-κN)-, hydrogen, (OC-6-43)- (9CI) (CA INDEX NAME)



● H<sup>+</sup>

OS.CITING REF COUNT: 51 THERE ARE 51 CAPLUS RECORDS THAT CITE THIS RECORD (51 CITINGS)  
REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 48 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 2001:865908 CAPLUS  
DOCUMENT NUMBER: 136:224096  
TITLE: Analysis of photochemical reactions of bis(1,10-phenanthroline)diamineruthenium(II) complexes by electrospray ionization mass spectrometry  
AUTHOR(S): Arakawa, Ryuichi; Abe, Kazuyuki; Iwai, Masayoshi; Fukuo, Tsuyoshi; Nakabayashi, Yasuo  
CORPORATE SOURCE: Dep. Applied Chemistry, Faculty Engineering, Kansai

SOURCE: Univ., Suita, Osaka, 564-8680, Japan  
Journal of the Mass Spectrometry Society of Japan  
(2001), 49(5), 183-187  
CODEN: JMSJEY; ISSN: 1340-8097  
PUBLISHER: Nippon Shitsuryo Bunseki Gakkai  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The photoinduced ligand substitution reaction of the bisphenanthroline complex  $[\text{Ru}(\text{phen})_2\text{B}]^{2+}$  (where phen = 1,10-phenanthroline, B = ethylenediamine (en), trimethylenediamine (tn), or butanediamine (bn)) in acetonitrile solution was studied using electrospray ionization mass spectrometry (ESI-MS). The photochem. reaction of a diamineruthenium(II) complex has been known to proceed by oxidation of a diamine ligand to an  $\alpha, \alpha'$ -diimine by oxidative dehydrogenation. The final reaction product was a solvent substituted complex  $[\text{Ru}(\text{phen})_2\text{S}_2]^{2+}$ , where S is the solvent acetonitrile. The authors detected two monodentate complexes, an imine complex  $[\text{Ru}(\text{phen})_2(\text{B}-2)\text{S}]^{2+}$  and a nitroso complex  $[\text{Ru}(\text{phen})_2(\text{en} + 14)\text{S}]^{2+}$  in the ESI-MS anal. of the photoreaction products of  $[\text{Ru}(\text{phen})_2\text{B}]^{2+}$ . These monodentate complexes were not observed with a bipyridine complex  $[\text{Ru}(\text{bpy})_2\text{B}]^{2+}$  (where bpy = 2,2'-bipyridine, B = en or tn). In addition, photochem. reactivity of the phen complex was found to be higher than that of the bpy complex. The difference in the photochem. reactivity can be explained by the difference in configurational flexibility of the phen and bpy ligands in the ruthenium complexes.

IT 402489-75-2

RL: CPS (Chemical process); FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); FORM (Formation, nonpreparative); PROC (Process)  
(photoproduct; photoinduced ligand substitution reaction of bis(phenanthroline)diamineruthenium(II) complex studied by electrospray ionization mass spectrometry)

RN 402489-75-2 CAPLUS

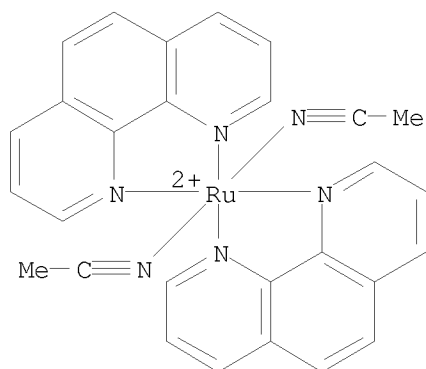
CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline- $\kappa\text{N}1, \kappa\text{N}10$ )-, (OC-6-22)-, mono[hexafluorophosphate(1-)] (9CI)  
(CA INDEX NAME)

CM 1

CRN 85370-14-5

CMF C28 H22 N6 Ru

CCI CCS



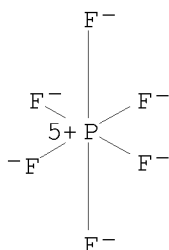
CM 2

10/585,013

CRN 16919-18-9

CMF F6 P

CCI CCS

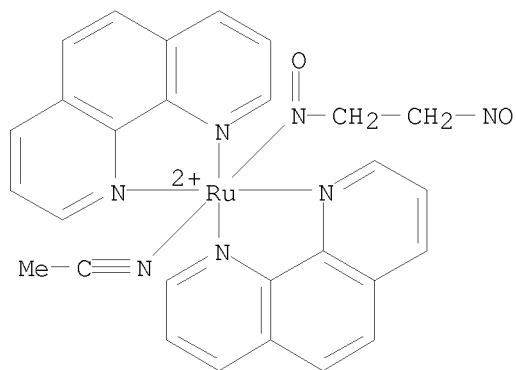


IT 402489-71-8 402489-72-9 402491-28-5

RL: CPS (Chemical process); FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); FORM (Formation, nonpreparative); PROC (Process); RACT (Reactant or reagent) (transient photoproduct; photoinduced ligand substitution reaction of bis(phenanthroline)diamineruthenium(II) complex studied by electrospray ionization mass spectrometry)

RN 402489-71-8 CAPLUS

CN Ruthenium(2+), (acetonitrile)[1-(nitroso- $\kappa$ N)-2-nitrosoethane]bis(1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-, (OC-6-33)- (CA INDEX NAME)



RN 402489-72-9 CAPLUS

CN Ruthenium(2+), (acetonitrile)[1-(nitroso- $\kappa$ N)-2-nitrosoethane]bis(1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-, (OC-6-33)-, mono[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

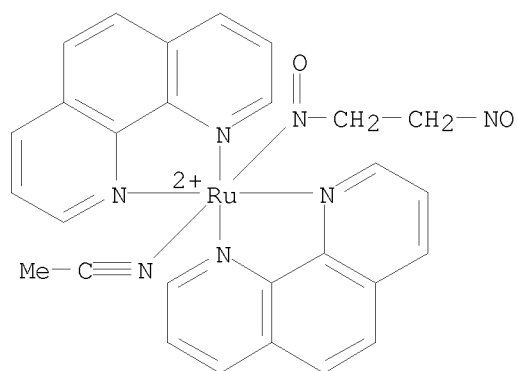
CM 1

CRN 402489-71-8

CMF C28 H23 N7 O2 Ru

CCI CCS

10/585,013

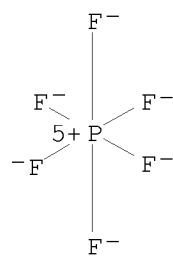


CM 2

CRN 16919-18-9

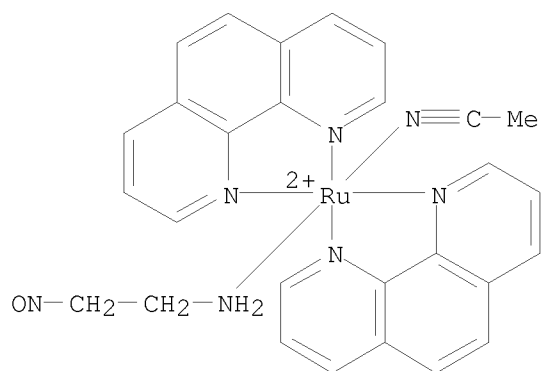
CMF F6 P

CCI CCS



RN 402491-28-5 CAPLUS

CN Ruthenium(2+), (acetonitrile)(2-nitrosoethanamine-κN)bis(1,10-phenanthroline-κN1,κN10)-, (OC-6-23)- (CA INDEX NAME)



IT 402491-29-6

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)

(transient photoproduct; photoinduced ligand substitution reaction of

10/585,013

bis(phenanthroline)diamineruthenium(II) complex studied by electrospray  
ionization mass spectrometry)

RN 402491-29-6 CAPLUS

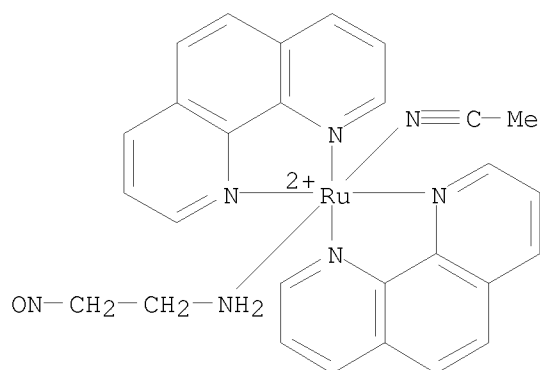
CN Ruthenium(2+), (acetonitrile)(2-nitrosoethanamine-κN)bis(1,10-  
phenanthroline-κN1,κN10)-, (OC-6-23)-,  
mono[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 402491-28-5

CMF C28 H25 N7 O Ru

CCI CCS

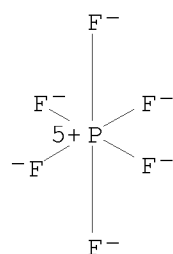


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
(1 CITINGS)

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 49 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2001:859494 CAPLUS

DOCUMENT NUMBER: 136:224079

TITLE: New Ru(II) phenanthroline complex photosensitizers  
having different number of carboxyl groups for  
dye-sensitized solar cells

AUTHOR(S): Hara, Kohjiro; Sugihara, Hideki; Singh, Lok Pratap;

CORPORATE SOURCE: Islam, Ashraful; Katoh, Ryuzi; Yanagida, Masatoshi; Sayama, Kazuhiro; Murata, Shigeo; Arakawa, Hironori  
 Photoreaction Control Research Center (PCRC), National  
 Institute of Advanced Industrial Science and  
 Technology (AIST), Ibaraki, Tsukuba, 305-8565, Japan  
 SOURCE: Journal of Photochemistry and Photobiology, A:  
 Chemistry (2001), 145(1-2), 117-122  
 CODEN: JPPCEJ; ISSN: 1010-6030  
 PUBLISHER: Elsevier Science S.A.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

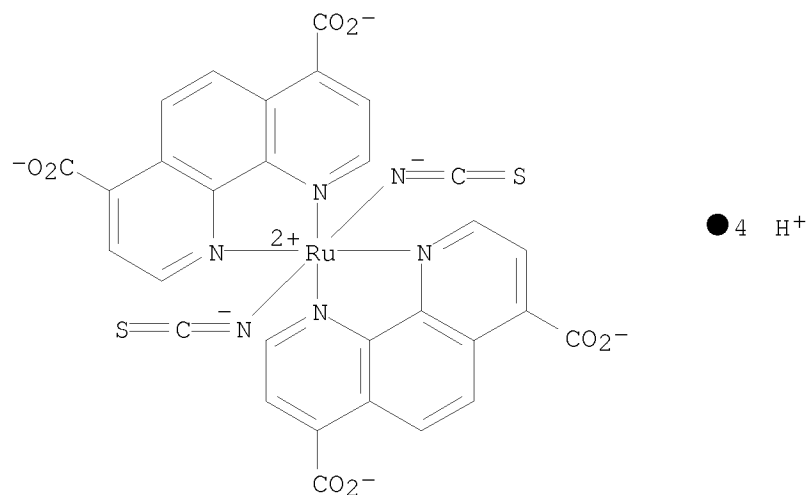
AB We have prepared and characterized four carboxylated Ru(II) phenanthroline complexes with different number of carboxyl groups, cis-dithiocyanato bis(4,7-dicarboxy-1,10-phenanthroline) ruthenium(II) [Ru(dcphe)2(NCS)2, DCP2], cis-dithiocyanato bis(4-monocarboxy-1,10-phenanthroline) ruthenium(II) [Ru(mcphe)2(NCS)2, MCP2], cis-dithiocyanato (4,7-dicarboxy-1,10-phenanthroline) (1,10-phenanthroline) ruthenium(II) [Ru(dcphe)(phen)(NCS)2, DCP], and cis-dithiocyanato (4-monocarboxy-1,10-phenanthroline) (1,10-phenanthroline) ruthenium(II) [Ru(mcphe)(phen)(NCS)2, MCP], as photosensitizers for nanocryst. dye-sensitized solar cells. All complexes exhibit a broad MLCT absorption band around 500 nm in ethanol and an emission band around 700 nm in ethanol-methanol (4:1) at 77 K. The excited state lifetime of these complexes at 77 K was 1.5-2.9  $\mu$ s and the oxidation potential, 0.90-1.12 V vs. NHE, was obtained by cyclic voltammetry in solution. The best solar-energy-to-elec. conversion efficiency under AM 1.5 irradiation was obtained for DCP which has two carboxyl groups on one phenanthroline ligand. The performance of photosensitizer of MCP which has only one carboxyl group is lower than that for the other complexes, indicating that the number of carboxyl groups as anchor is very important for efficient solar cell performance.

IT 214000-95-0P 374771-98-9P 374772-00-6P  
 374772-02-8P  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
 (Ru(II) phenanthroline complex photosensitizers having different number of carboxyl groups for dye-sensitized solar cells)

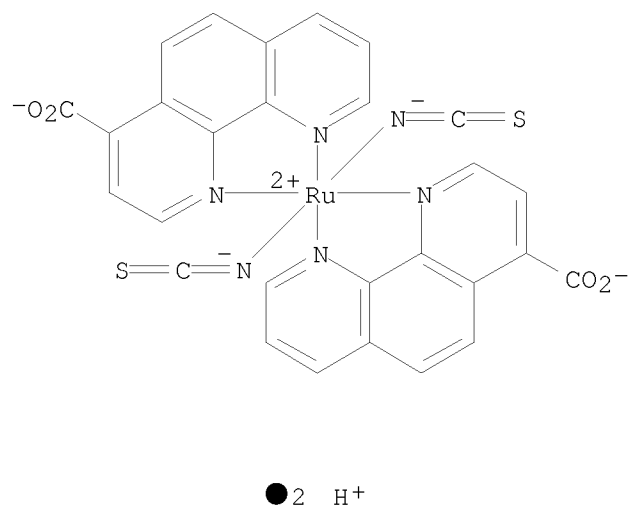
RN 214000-95-0 CAPLUS  
 CN Ruthenate(4-), bis[1,10-phenanthroline-4,7-dicarboxylato(2-)- $\kappa$ N1, $\kappa$ N10]bis(thiocyanato- $\kappa$ N)-, tetrahydrogen, (OC-6-21)-(9CI) (CA INDEX NAME)



10/585,013

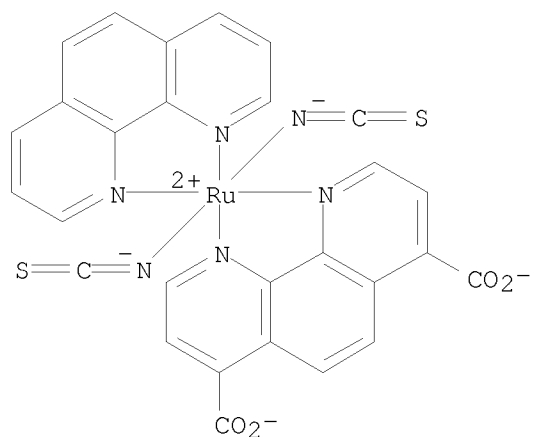


RN 374771-98-9 CAPLUS  
 CN Ruthenate(2-), bis(1,10-phenanthroline-4-carboxylato-  
 κN1,κN10)bis(thiocyanato-κN)-, dihydrogen, (OC-6-33)-  
 (9CI) (CA INDEX NAME)



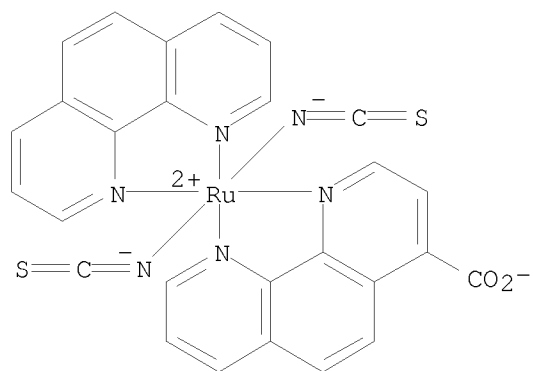
RN 374772-00-6 CAPLUS  
 CN Ruthenate(2-), (1,10-phenanthroline-κN1,κN10)[1,10-  
 phenanthroline-4,7-dicarboxylato(2-)-κN1,κN10]bis(thiocyanato-  
 κN)-, dihydrogen, (OC-6-32)- (9CI) (CA INDEX NAME)

10/585,013



● 2 H<sup>+</sup>

RN 374772-02-8 CAPLUS  
CN Ruthenate(1-), (1,10-phenanthroline-κN1,κN10) (1,10-phenanthroline-4-carboxylato-κN1,κN10)bis(thiocyanato-κN)-, hydrogen, (OC-6-43)- (9CI) (CA INDEX NAME)



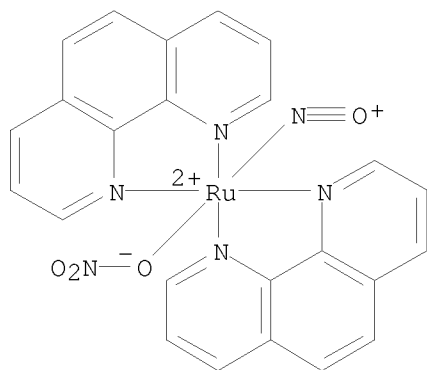
● H<sup>+</sup>

OS.CITING REF COUNT: 25 THERE ARE 25 CAPLUS RECORDS THAT CITE THIS RECORD (26 CITINGS)  
REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 50 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 2001:621169 CAPLUS  
DOCUMENT NUMBER: 135:351961  
TITLE: Reactivity studies of [Ru(L-L)2Cl2] (L-L = 2,2'-bipyridine or 1,10-phenanthroline) with AgNO3 in different media

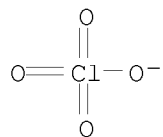
10/585,013

AUTHOR(S): Malhotra, Ashish; Poddar, Raj K.  
CORPORATE SOURCE: Department of Chemistry, North Eastern Hill  
University, Shillong, 793 022, India  
SOURCE: Indian Journal of Chemistry, Section A: Inorganic,  
Bio-inorganic, Physical, Theoretical & Analytical  
Chemistry (2001), 40A(8), 883-886  
CODEN: ICACEC; ISSN: 0376-4710  
PUBLISHER: National Institute of Science Communication  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 135:351961  
AB Reactions of  $[\text{Ru}(\text{L-L})_2\text{Cl}_2]$  (L-L = 2,2'-bipyridine or 1,10-phenanthroline)  
with  $\text{AgNO}_3$  were carried out in EtOH, MeCN, acetone, and 2-ethoxyethanol  
media and  $[\text{Ru}(\text{L-L})_2(\text{H}_2\text{O})(\text{NO}_3)](\text{NO}_3)$ ,  $[\text{Ru}(\text{L-L})_2(\text{MeCN})_2](\text{ClO}_4)_2$  and  
 $[\text{Ru}(\text{CO})_2(\text{bipy})_2](\text{ClO}_4)_2$  were obtained. A reaction of  
 $[\text{Ru}(\text{L-L})_2(\text{H}_2\text{O})(\text{NO}_3)](\text{NO}_3)$  with  $\text{HClO}_4$  gave  $[\text{Ru}(\text{L-L})_2(\text{NO})(\text{NO}_3)](\text{ClO}_4)_2$ . All  
the compds. were characterized by anal. data, conductivity measurements, IR,  
UV-visible and cyclic voltammetric studies. Formation of different  
compds. in different solvents also were rationalized.  
IT 371149-52-9P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and redox potential of)  
RN 371149-52-9 CAPLUS  
CN Ruthenium(2+), (nitrato- $\kappa\text{O}$ )nitrosylbis(1,10-phenanthroline-  
 $\kappa\text{N}1, \kappa\text{N}10$ )-, diperchlorate (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 371149-51-8  
CMF C24 H16 N6 O4 Ru  
CCI CCS

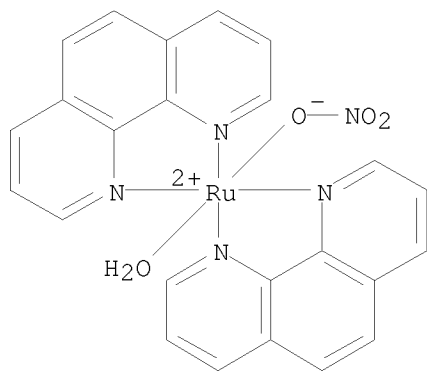


CM 2  
  
CRN 14797-73-0  
CMF C1 O4

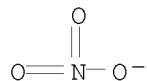
10/585,013



IT 609363-06-6P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and redox potential of)  
RN 609363-06-6 CAPLUS  
CN Ruthenium(1+), aqua(nitrato- $\kappa$ O)bis(1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-, nitrate (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 371149-49-4  
CMF C24 H18 N5 O4 Ru  
CCI CCS



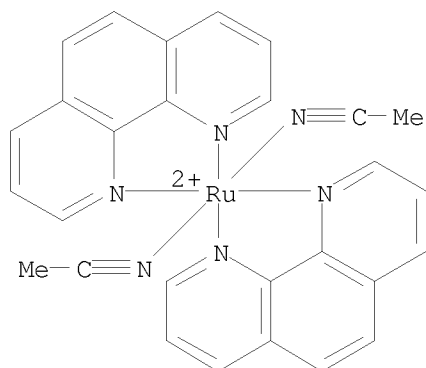
CM 2  
  
CRN 14797-55-8  
CMF N O3



IT 371149-54-1P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)  
RN 371149-54-1 CAPLUS  
CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-N1,N10)-, diperchlorate (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 151284-48-9  
CMF C28 H22 N6 Ru

10/585,013

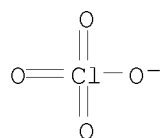
CCI CCS



CM 2

CRN 14797-73-0

CMF C1 O4



REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 51 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2001:598515 CAPLUS

DOCUMENT NUMBER: 136:8948

TITLE: Dye-Sensitized Nanocrystalline TiO<sub>2</sub> Solar Cells Based on Ruthenium(II) Phenanthroline Complex Photosensitizers

AUTHOR(S): Hara, Kohjiro; Sugihara, Hideki; Tachibana, Yasuhiro; Islam, Ashraful; Yanagida, Masatoshi; Sayama, Kazuhiro; Arakawa, Hironori; Fujihashi, Gaku; Horiguchi, Takaro; Kinoshita, Tohru

CORPORATE SOURCE: Photoreaction Control Research Center (PCRC) National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki, 305-8565, Japan

SOURCE: Langmuir (2001), 17(19), 5992-5999

CODEN: LANGD5; ISSN: 0743-7463

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB We have synthesized four carboxylated Ru(II) phenanthroline complexes with different nos. of carboxyl groups, cis-bis(4,7-dicarboxy-1,10-phenanthroline)dithiocyanato ruthenium(II) (Ru(dcphen)<sub>2</sub>(NCS)<sub>2</sub>), cis-bis(4-monocarboxy-1,10-phenanthroline)dithiocyanato ruthenium(II) (Ru(mcphen)<sub>2</sub>(NCS)<sub>2</sub>), cis-(4,7-dicarboxy-1,10-phenanthroline)(1,10-phenanthroline)dithiocyanato ruthenium(II) (Ru(dcphen)(phen)(NCS)<sub>2</sub>), and

cis-(4-monocarboxy-1,10-phenanthroline)(1,10-phenanthroline)dithiocyanato ruthenium(II) (Ru(mcphen)(phen)(NCS)<sub>2</sub>), as photosensitizers for oxide semiconductor solar cells. We have studied photovoltaic properties of dye-sensitized nanocryst. semiconductor solar cells based on Ru phenanthroline complexes and an iodine redox electrolyte. The photovoltaic performance of the TiO<sub>2</sub> solar cell sensitized by Ru(dcphen)<sub>2</sub>(NCS)<sub>2</sub>(TBA)<sub>2</sub> exceeded that of ZnO, SnO<sub>2</sub>, and In<sub>2</sub>O<sub>3</sub> solar cells. A solar energy to electricity conversion efficiency ( $\eta$ ) of 6.6% was obtained under the standard AM 1.5 irradiation (100 mW cm<sup>-2</sup>, JIS A class) with

a short-circuit photocurrent d. (J<sub>sc</sub>) of 12.5 mA cm<sup>-2</sup>, an open-circuit photovoltage (V<sub>oc</sub>) of 0.74 V, and a fill factor (ff) of 0.71. Monochromatic incident photon to current conversion efficiency was 78% at 526 nm. Deoxycholic acid as a coadsorbate and decreasing film thickness improved V<sub>oc</sub> especially due to suppression of the dark current reaction corresponding to the reduction of triiodide ions with injected electrons. The improved photovoltaic property due to the added coadsorbate suggests that some aggregates of the Ru complex suppress efficient electron injection to the semiconductor. The position and number of carboxyl groups attached to the phenanthroline ligand as an anchor affect photosensitizer performance significantly, suggesting that the anchoring configuration of Ru phenanthroline complexes on the semiconductor surface is important to efficient photovoltaic cell performance. Two carboxyl groups attached to phenanthroline ligands are necessary for effective electron injection.

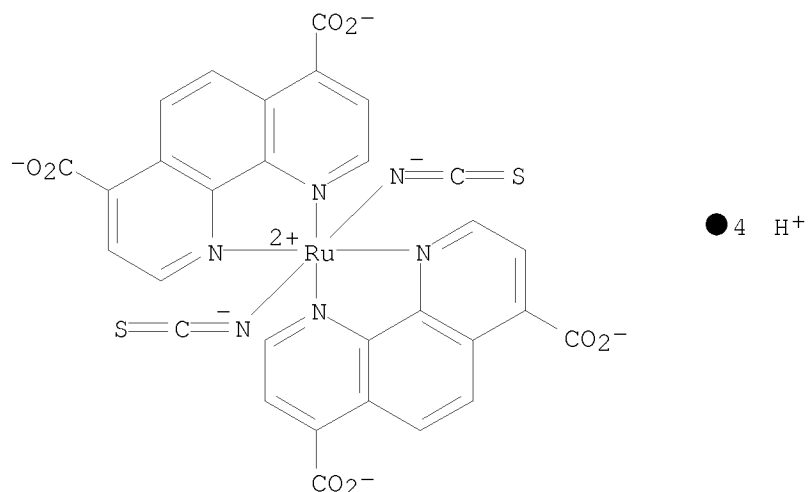
IT 214000-95-0 374771-98-9 374772-00-6  
374772-02-8

RL: DEV (Device component use); USES (Uses)

(dye-sensitized nanocryst. titania 2 solar cells based on ruthenium(II) phenanthroline complex photosensitizers)

RN 214000-95-0 CAPLUS

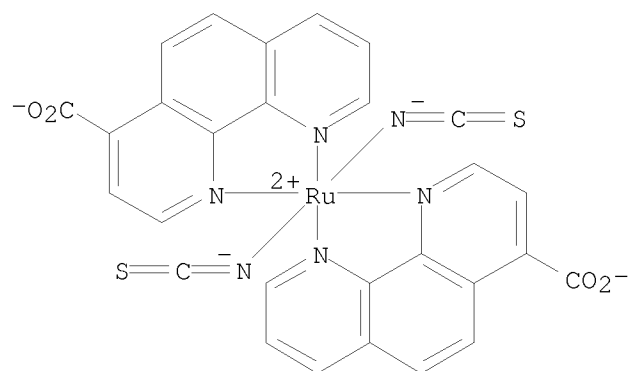
CN Ruthenate(4-), bis[1,10-phenanthroline-4,7-dicarboxylato(2-)- $\kappa$ N1, $\kappa$ N10]bis(thiocyanato- $\kappa$ N)-, tetrahydrogen, (OC-6-21)-(9CI) (CA INDEX NAME)



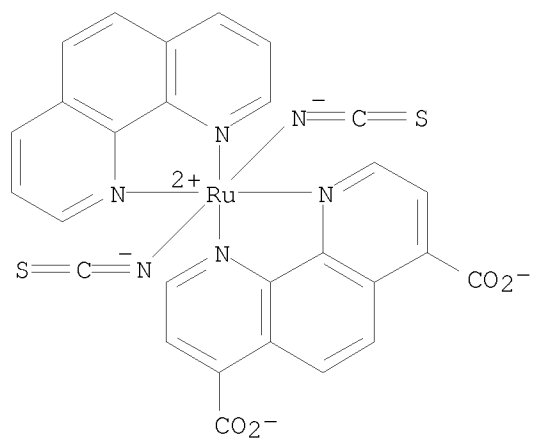
RN 374771-98-9 CAPLUS

CN Ruthenate(2-), bis(1,10-phenanthroline-4-carboxylato- $\kappa$ N1, $\kappa$ N10)bis(thiocyanato- $\kappa$ N)-, dihydrogen, (OC-6-33)-(9CI) (CA INDEX NAME)

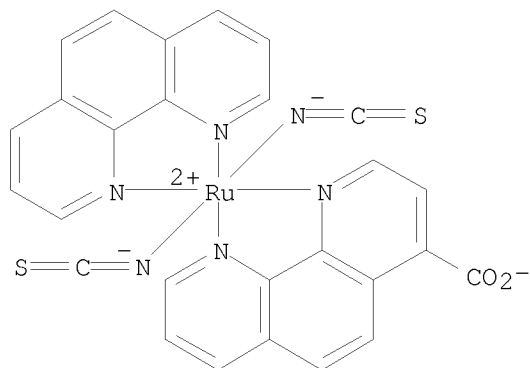
10/585,013



RN 374772-00-6 CAPLUS  
CN Ruthenate(2-), (1,10-phenanthroline-κN1,κN10) [1,10-phenanthroline-4,7-dicarboxylato(2-)-κN1,κN10]bis(thiocyanato-κN)-, dihydrogen, (OC-6-32)- (9CI) (CA INDEX NAME)



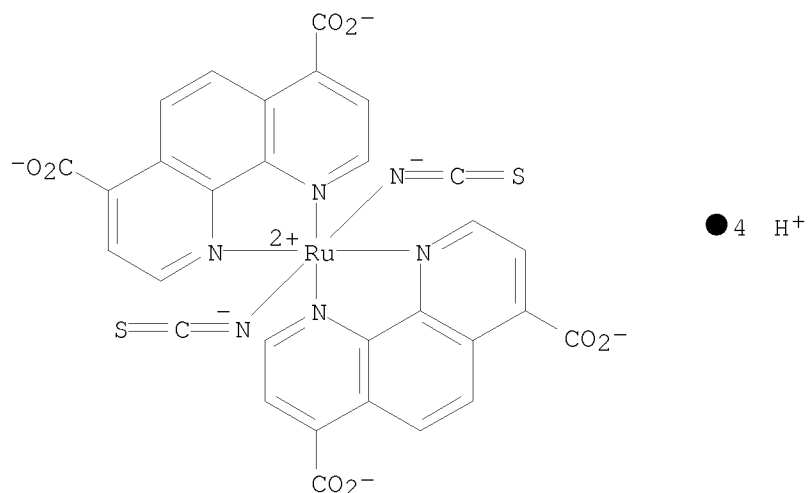
RN 374772-02-8 CAPLUS  
CN Ruthenate(1-), (1,10-phenanthroline-κN1,κN10) (1,10-phenanthroline-4-carboxylato-κN1,κN10)bis(thiocyanato-κN)-, hydrogen, (OC-6-43)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 85 THERE ARE 85 CAPLUS RECORDS THAT CITE THIS  
RECORD (85 CITINGS)  
REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 52 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 2001:522031 CAPLUS  
DOCUMENT NUMBER: 135:275211  
TITLE: Development of new metallic pigment sensitizers.  
Development of phenanthroline pigment solar cells  
AUTHOR(S): Sugihara, Hideki; Arakawa, Hironori  
CORPORATE SOURCE: Research Center for Optic Reaction, National Institute  
of Advanced Industrial Science and Technology, Japan  
SOURCE: Shikiso Zokan Taiyo Denchi no Saishin Gijutsu (2001),  
103-107. Editor(s): Arakawa, Hironori. Shi Emu Shi:  
Tokyo, Japan.  
CODEN: 69BMKK  
DOCUMENT TYPE: Conference; General Review  
LANGUAGE: Japanese  
AB A review, with refs., of properties and performance of Ru(II)  
phenanthroline dyes and effect on photoelec. conversion efficiency of dye  
sensitized solar cells.  
IT 214000-95-0  
RL: DEV (Device component use); USES (Uses)  
(development of phenanthroline pigment solar cells)  
RN 214000-95-0 CAPLUS  
CN Ruthenate(4-), bis[1,10-phenanthroline-4,7-dicarboxylato(2-)-  
κN1,κN10]bis(thiocyanato-κN)-, tetrahydrogen, (OC-6-21)-  
(9CI) (CA INDEX NAME)





L6 ANSWER 53 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2001:488888 CAPLUS

DOCUMENT NUMBER: 135:95162

TITLE: Dye-bonded oxide semiconductor electrode, and dye-sensitized solar cell

INVENTOR(S): Nanba, Noriyoshi; Kadota, Atsushi; Tanabe, Junji

PATENT ASSIGNEE(S): TDK Corporation, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001185243	A	20010706	JP 1999-369163	19991227
JP 4406985	B2	20100203		

PRIORITY APPLN. INFO.: JP 1999-369163 19991227

AB The electrode comprises, successively from the bottom, a transparent conductor layer, an oxide semiconductor film, and an organic dye film bonded with the semiconductor surface; wherein the conductor layer is porous, and the semiconductor film has a conduction band level lower than the lowest unoccupied level of the dye, and the combination of the conduction band level of the semiconductor film and of the conductive layer shows the same potential or higher than the lowest unoccupied level of the dye. A dye-sensitized solar cell comprises the semiconductor electrode, a counter electrode, and an electrolyte-containing material between them. The solar cell shows large open voltage and short-cut current.

IT 349104-61-6

RL: DEV (Device component use); USES (Uses)

(dye; dye-sensitized solar cell containing dye-bonded oxide semiconductor electrode)

RN 349104-61-6 CAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, hydrogen  
(OC-6-21)-bis[1,10-phenanthroline-4,7-dicarboxylato(2-)-  
κN1,κN10]bis(thiocyanato-κN)ruthenate(4-) (3:1:1) (9CI)  
(CA INDEX NAME)

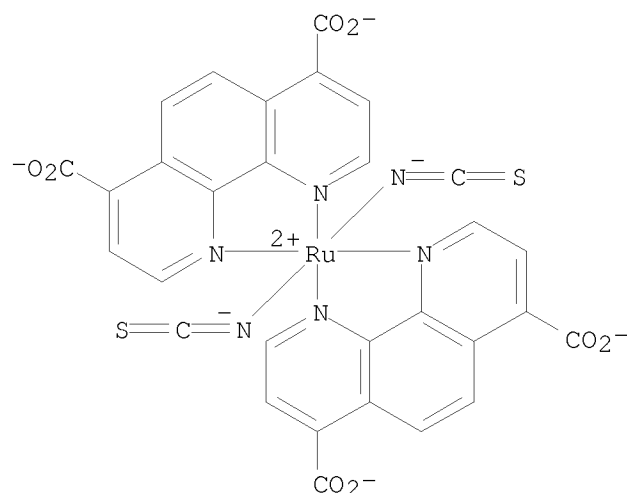
10/585,013

CM 1

CRN 214001-24-8

CMF C30 H12 N6 O8 Ru S2

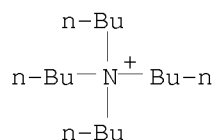
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



L6 ANSWER 54 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2001:44931 CAPLUS

DOCUMENT NUMBER: 134:231134

TITLE: Synthesis and characterization of new ruthenium complexes with

11-carboxy-dipyrido(3,2-a:2',3'-c)phenazine as ligand  
AUTHOR(S): Arangibia, Alejandra; Leiva, Ana Maria; Loeb, Barbara  
CORPORATE SOURCE: Fac. Quim., Pontif. Univ. Catol. Chile, Santiago, Chile

SOURCE: Boletin de la Sociedad Chilena de Quimica (2000), 45(4), 587-592

CODEN: BOCQAX; ISSN: 0366-1644

PUBLISHER: Sociedad Chilena de Quimica

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 134:231134

AB A general method for the synthesis of ruthenium(II) complexes  
[(HOOC-dppz)<sub>2</sub>RuX<sub>2</sub>] and [(HOOC-dppz)RuL<sub>2</sub>](PF<sub>6</sub>)<sub>2</sub> (X = Cl or SCN, L =  
2,2'-bipyridine or 4,4'-dimethyl-2,2'-bipyridine and HOOC-dppz =

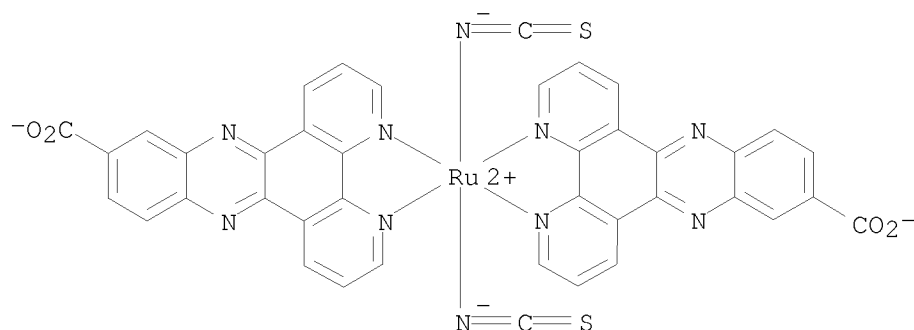
11-carboxy-dipyrido(3,2-a:2',3'-c)phenazine), is reported. The complexes were characterized by conventional techniques such as UV-visible, IR and <sup>1</sup>H-NMR spectroscopies and cyclic voltammetry.

IT 329328-57-6P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and electrochem. redox)

RN 329328-57-6 CAPLUS

CN Ruthenate(2-), bis(dipyrido[3,2-a:2',3'-c]phenazine-11-carboxylato- $\kappa$ N4, $\kappa$ N5)bis(thiocyanato- $\kappa$ N)-, dihydrogen (9CI) (CA INDEX NAME)



● 2 H<sup>+</sup>

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)  
REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 55 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2001:23166 CAPLUS

DOCUMENT NUMBER: 134:231067

TITLE: Influence of L-type ligands on the relative stability and interconversion of cis-trans-[Ru(phen)2L2]<sup>n+</sup> type complexes. A theoretical study

AUTHOR(S): Concepcion, J.; Loeb, B.; Simon-Manso, Y.; Zuloaga, F.  
CORPORATE SOURCE: Facultad de Quimica, Pontificia Universidad Catolica de Chile, Santiago, Chile

SOURCE: Polyhedron (2000), 19(22-23), 2297-2302  
CODEN: PLYHDE; ISSN: 0277-5387

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Polypyridine complexes [Ru(N-N)2L2]<sup>2+</sup> are useful for the conversion of light into usable energy for which the trans geometry would be preferable. The effect of distortion on trans structure stability was studied theor. A formal separation of the contributions was carried out, and it explained why the H repulsions are an important factor. A study of the main aspects related to the cis-trans isomers and also their mutual interconversion was analyzed. Calcns. were carried out at the PM3, ZINDO and ab initio level. Energy differences between trans and cis isomers after full geometry optimizations for different L-ligands show a dependence on the L-ligand Jorgensen field strength parameter f. A driving coordinate was performed

to determine the kinetic preferences for isomer formation. The anal. showed that the entrance of the 2nd phenanthroline is favored for the cis geometry in regard to the trans geometry. The activation barrier is also dependent on the L-ligand strength. The thermal trans-cis interconversion seems to be very improbable adiabatically (considering only one potential energy surface).

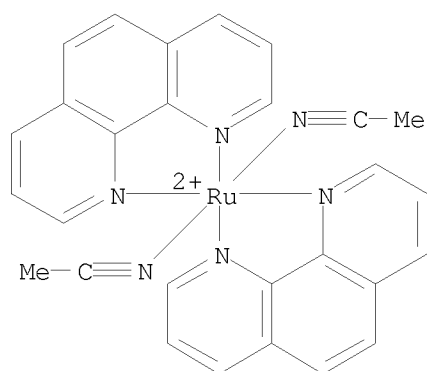
IT 85370-14-5 85439-55-0 329279-04-1  
 329279-09-6 329711-13-9 329711-19-5  
 329711-26-4 329711-36-6

RL: PRP (Properties)

(conformation and ligand field strength effects in isomer stability for ruthenium phenanthroline heteroleptic complexes from semi-empirical and ab initio calcns.)

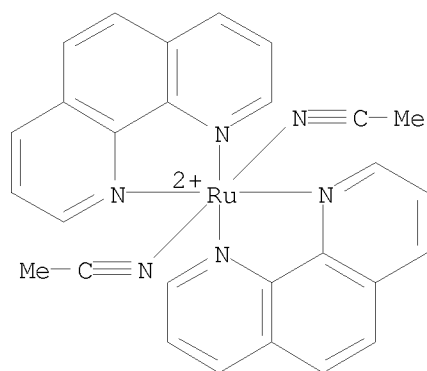
RN 85370-14-5 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-, (OC-6-22)- (CA INDEX NAME)



RN 85439-55-0 CAPLUS

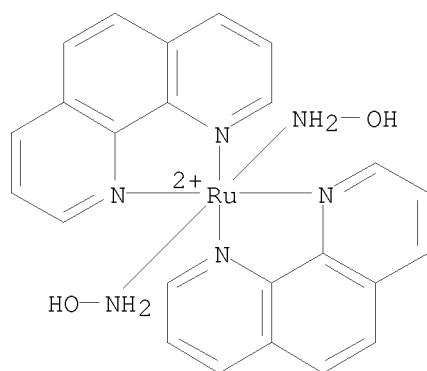
CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-, (OC-6-12)- (CA INDEX NAME)



RN 329279-04-1 CAPLUS

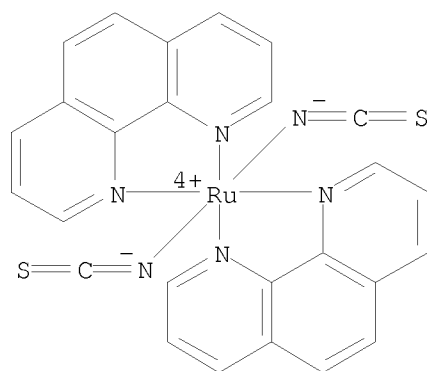
CN Ruthenium, bis(hydroxylamine- $\kappa$ N)bis(1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-, (OC-6-22)- (9CI) (CA INDEX NAME)

10/585,013



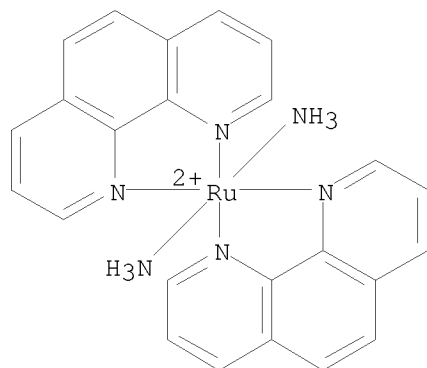
RN 329279-09-6 CAPLUS

CN Ruthenium(2+), bis(1,10-phenanthroline-  
κN1,κN10)bis(thiocyanato-κN)-, (OC-6-21)- (CA INDEX  
NAME)



RN 329711-13-9 CAPLUS

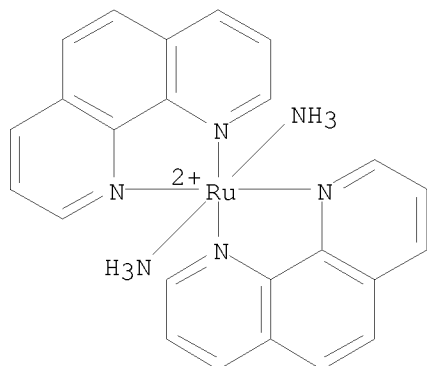
CN Ruthenium(2+), diamminebis(1,10-phenanthroline-κN1,κN10)-,  
(OC-6-21)- (CA INDEX NAME)



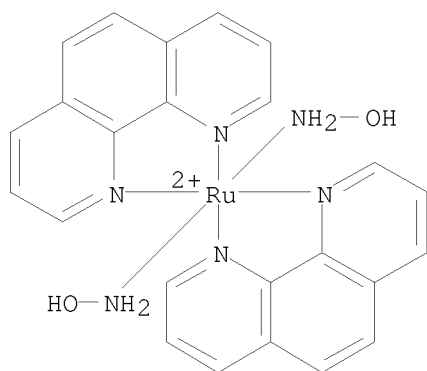
RN 329711-19-5 CAPLUS

CN Ruthenium(2+), diamminebis(1,10-phenanthroline-κN1,κN10)-,  
(OC-6-11)- (CA INDEX NAME)

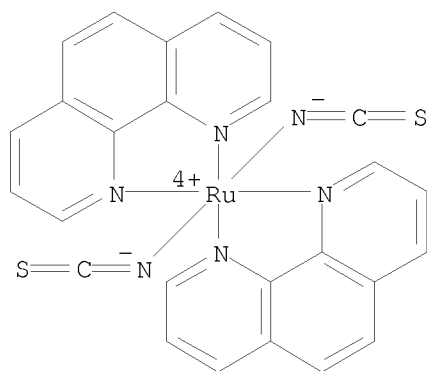
10/585,013



RN 329711-26-4 CAPLUS  
CN Ruthenium(2+), bis(hydroxylamine-κN)bis(1,10-phenanthroline-κN1,κN10)-, (OC-6-12)- (9CI) (CA INDEX NAME)



RN 329711-36-6 CAPLUS  
CN Ruthenium(2+), bis(1,10-phenanthroline-κN1,κN10)bis(thiocyanato-κN)-, (OC-6-11)- (CA INDEX NAME)



OS.CITING REF COUNT: 8

THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD  
(8 CITINGS)

10/585,013

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 56 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2001:12037 CAPLUS

DOCUMENT NUMBER: 134:334064

TITLE: Photochemical expulsion of a Ru(phen)<sub>2</sub> unit from a macrocyclic receptor and its thermal reco-ordination  
AUTHOR(S): Collin, Jean-Paul; Laemmel, Anne-Chantal; Sauvage, Jean-Pierre

CORPORATE SOURCE: Laboratoire de Chimie Organo-Minérale, Faculté de Chimie, UMR 7513 du CNRS, Université Louis Pasteur, Strasbourg, 67070, Fr.

SOURCE: New Journal of Chemistry (2001), 25(1), 22-24  
CODEN: NJCHE5; ISSN: 1144-0546

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

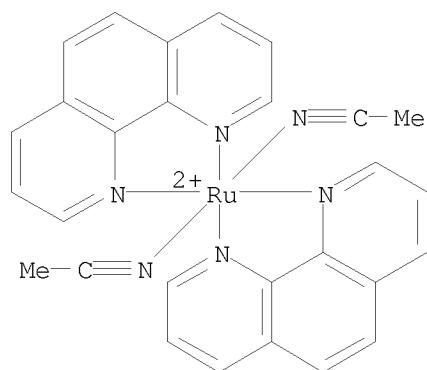
AB A Ru complex containing two 1,10-phenanthroline ligands as well as a bipyridine fragment incorporated in a macrocycle (36 atoms) has been synthesized. Photoexpulsion of the Ru(phen)<sub>2</sub> unit from the macrocycle and its thermal reco-ordination takes place efficiently and quant.

IT 85370-14-5P

RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation) (photochem. expulsion of Ru(phen)<sub>2</sub> unit from macrocyclic receptor and thermal reco-ordination)

RN 85370-14-5 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-κN1,κN10)-, (OC-6-22)- (CA INDEX NAME)



OS.CITING REF COUNT: 48 THERE ARE 48 CAPLUS RECORDS THAT CITE THIS RECORD (48 CITINGS)

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 57 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2000:621219 CAPLUS

DOCUMENT NUMBER: 133:343765

TITLE: Highly Diastereoselective Preparation of Ruthenium Bis(diimine) Sulfoxide Complexes: New Concept in the Preparation of Optically Active Octahedral Ruthenium Complexes

AUTHOR(S): Pezet, Frederic; Daran, Jean-Claude; Sasaki, Isabelle; Aiet-Haddou, Hassan; Balavoine, Gilbert G. A.

CORPORATE SOURCE: Laboratoire de Chimie de Coordination, CNRS, Toulouse, 31077, Fr.

SOURCE: Organometallics (2000), 19(20), 4008-4015  
CODEN: ORGND7; ISSN: 0276-7333

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 133:343765

AB Microwave irradiation of racemic cis-[Ru(bpy)2(Cl)2] (bpy = 2,2'-bipyridine) or racemic cis-[Ru(phen)2(Cl)2] (phen = phenanthroline) with either (R)-(+)- or (S)-(-)-Me p-tolyl sulfoxide (2 and 4, resp.) yielded the Ru bis(diimine) sulfoxide complexes with a high level of asym. induction (73-76% de). Stereochem. at the metal center for the major isomer was determined by x-ray study of [Ru(bpy)2(dmbpy)](PF6)2, obtained by reaction of complex cis- $\Delta$ -[Ru(bpy)2(2)(Cl)]PF6 (3) with 4,4'-dimethyl-2,2'-bipyridine and confirmed by x-ray study of the complex cis- $\Delta$ -[Ru(phen)2(2)(Cl)]PF6 (7). The absolute configuration at the metal center for the minor isomer was established by x-ray study of the minor isomer derived from the reaction of cis-[Ru(bpy)2(Cl)2] with (S)-(-)-Me p-tolyl sulfoxide. Structural anal. of  $\Delta$ -7 (major isomer) revealed two intramol. interactions, O...H interaction and  $\pi$ - $\pi$  stacking of the pyridyl-tolyl rings, while the structural anal. of  $\Delta$ -5 (minor isomer) showed only the presence of the O...H interaction. The importance of these interactions in this transformation was confirmed by the reaction of cis-[Ru(2,9-dimethyl-1,10-phenanthroline)2Cl2] with (R)-(+)-Me p-tolyl sulfoxide, which gave, in MeCN, cis-[Ru(2,9-dimethyl-1,10-phenanthroline)2(MeCN)2]·2PF6 (10). O...H and  $\pi$ - $\pi$  interactions were used to explain both the reactivity of cis-[Ru(diimine)2Cl2] with the sulfoxide and the stability of the major isomer when enantiomerically pure sulfoxide was used.

IT 133090-93-4DP, solvated  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(racemic; preparation and crystal structure of)

RN 133090-93-4 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(2,9-dimethyl-1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-, (OC-6-22)-, bis[hexafluorophosphate(1-)] (9CI)  
(CA INDEX NAME)

CM 1

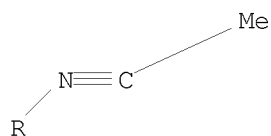
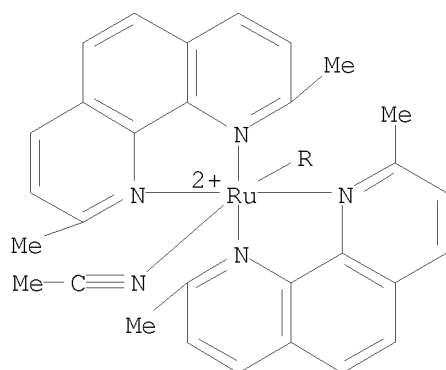
CRN 99547-22-5

CMF C32 H30 N6 Ru

CCI CCS



10/585,013

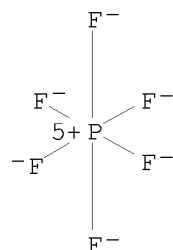


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 27 THERE ARE 27 CAPLUS RECORDS THAT CITE THIS RECORD (27 CITINGS)

REFERENCE COUNT: 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 58 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2000:541979 CAPLUS

DOCUMENT NUMBER: 133:328779

TITLE: A new efficient photosensitizer for nanocrystalline solar cells: synthesis and characterization of cis-bis(4,7-dicarboxy-1,10-phenanthroline)dithiocyanato ruthenium(II)

AUTHOR(S): Yanagida, Masatoshi; Singh, Lok Pratap; Sayama, Kazuhiro; Hara, Kohjiro; Katoh, Ryuzi; Islam, Ashraful; Sugihara, Hideki; Arakawa, Hironori; Nazeeruddin, Mohammad K.; Gratzel, Michael

CORPORATE SOURCE: National Institute of Materials and Chemical Research (NIMC), Tsukuba, Ibaraki, 305-8565, Japan

10/585,013

SOURCE: Dalton (2000), (16), 2817-2822

CODEN: DALTFG; ISSN: 1470-479X

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 133:328779

AB [NBu<sub>4</sub>]<sub>2</sub>n[cis-Ru(H<sub>2</sub>-ndcphen)<sub>2</sub>X<sub>2</sub>] (n = 0 or 1; H<sub>2</sub>dcphen; = 4,7-dicarboxy-1,10-phenanthroline; X = Cl, CN or SCN) were synthesized and spectroscopically characterized as a new class of photosensitizers. The energy levels of the LUMO and HOMO of cis-[Ru(H<sub>2</sub>dcphen)<sub>2</sub>(NCS)<sub>2</sub>] are -1.02 and 0.89 V (vs. SCE), resp., slightly more pos. than those of [NBu<sub>4</sub>]<sub>2</sub>n[cis-Ru(H<sub>2</sub>-ndcbpy)<sub>2</sub>(NCS)<sub>2</sub>] (n = 0 or 1; H<sub>2</sub>dcbpy = 4,4'-dicarboxy-2,2'-bipyridine). A more intense and broader MLCT absorption of [NBu<sub>4</sub>]<sub>2</sub>n[cis-Ru(H<sub>2</sub>-ndcphen)<sub>2</sub>(NCS)<sub>2</sub>] (n = 0 or 1) than that of [NBu<sub>4</sub>]<sub>2</sub>n[cis-Ru(H<sub>2</sub>-ndcbpy)<sub>2</sub>(NCS)<sub>2</sub>] (n = 0 or 1) was observed in EtOH solution

at .apprx.525 nm in the visible region. The new complexes act as efficient light harvesting antennae for dye-sensitized solar cells. A [NBu<sub>4</sub>]<sub>2</sub>n[cis-Ru(Hdcphen)<sub>2</sub>(NCS)<sub>2</sub>] sensitized nanocryst. TiO<sub>2</sub> film shows a remarkable solar light to elec. power conversion efficiency of 6.1% at 100 mW cm<sup>-2</sup> of AM 1.5.

IT 214001-25-9P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and photosensitization of titania films for solar cells by)

RN 214001-25-9 CAPLUS

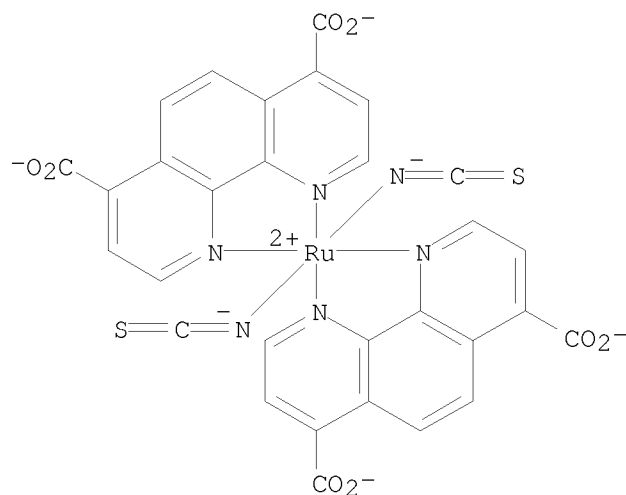
CN 1-Butanaminium, N,N,N-tributyl-, hydrogen  
(OC-6-21)-bis[1,10-phenanthroline-4,7-dicarboxylato(2-)-  
κN1,κN10]bis(thiocyanato-κN)ruthenate(4-) (2:2:1) (9CI)  
(CA INDEX NAME)

CM 1

CRN 214001-24-8

CMF C30 H12 N6 O8 Ru S2

CCI CCS

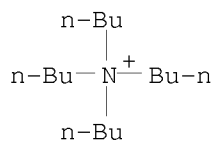


CM 2

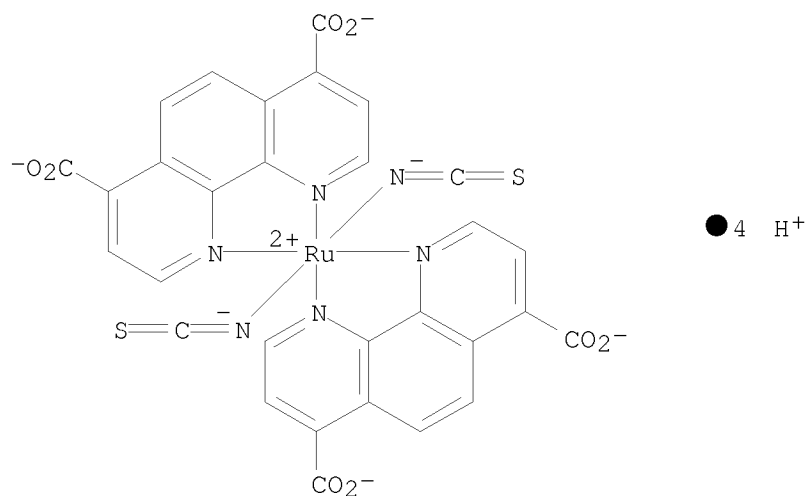
CRN 10549-76-5

10/585,013

CMF C16 H36 N



IT 214000-95-0P  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation, reaction with tetrabutylammonium hydroxide, electrochem. oxidation and photosensitization of titania films for solar cells by)  
RN 214000-95-0 CAPLUS  
CN Ruthenate(4-), bis[1,10-phenanthroline-4,7-dicarboxylato(2-)- $\kappa\text{N}1, \kappa\text{N}10$ ]bis(thiocyanato- $\kappa\text{N}$ )-, tetrahydrogen, (OC-6-21)-(9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 58 THERE ARE 58 CAPLUS RECORDS THAT CITE THIS RECORD (59 CITINGS)  
REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 59 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 2000:168970 CAPLUS  
DOCUMENT NUMBER: 132:350181  
TITLE: Preparation and application of new ruthenium(II) polypyridyl complexes as sensitizers for nanocrystalline TiO2  
AUTHOR(S): Schwarz, O.; van Loyen, D.; Jockusch, S.; Turro, N. J.; Durr, H.  
CORPORATE SOURCE: FB 11.2 Organische Chemie, Universitat des Saarlandes, Saarbrucken, D-66123, Germany  
SOURCE: Journal of Photochemistry and Photobiology, A: Chemistry (2000), 132(1-2), 91-98  
CODEN: JPPCEJ; ISSN: 1010-6030  
PUBLISHER: Elsevier Science S.A.  
DOCUMENT TYPE: Journal

LANGUAGE: English

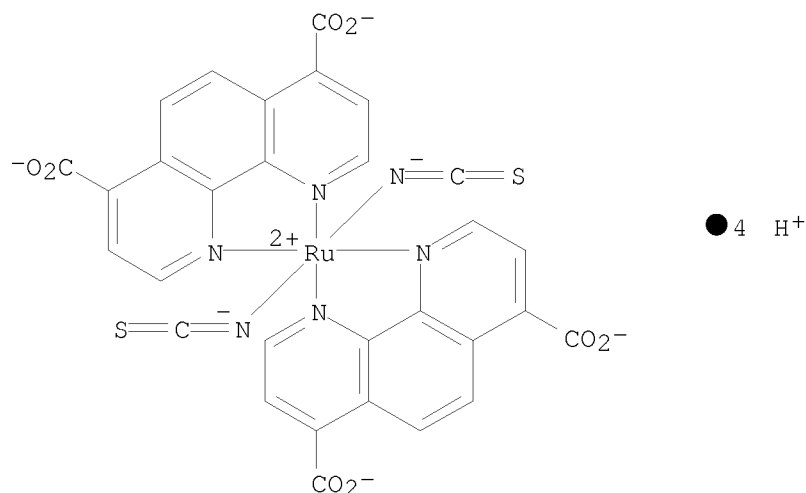
AB A series of Ru(II) polypyridyl complexes, containing carboxylic- and sulfonic 'anchor' groups, were synthesized as sensitizers for nanocryst. TiO<sub>2</sub>. Depending on number and type of ligands the sensitizers are divided into three classes: tris-homoleptic complexes 1a-d, tris-heteroleptic complexes 2a-d and bis-complexes 3a-f. The compds. were characterized and the photophys. and electrochem. properties were examined. These studies proved the suitability of 1a-3f as sensitizers for TiO<sub>2</sub>-based photoelectrochem. 'Graetzel'-type solar cells. A comparison of the performance of the complexes 1a-3f in the cell relative to Ru(dcbpy)<sub>2</sub>(NCS)<sub>2</sub> 3d as internal standard (dcbpy = 2,2'-bipyridine-4,4'-dicarboxylic acid) for mean efficiency  $\eta$  is presented, whereby Ru(dcphen)<sub>2</sub>(NCS)<sub>2</sub> 3f (dcphen = 1,10-phenanthroline-4,7-dicarboxylic acid) is shown to have an efficiency of  $\eta_{rel.}=62.3\%$  relative to 3d. A possible reason for the particular efficiency of 3d as sensitizer is discussed.

IT 214000-95-0P

RL: DEV (Device component use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (preparation and application of new ruthenium(II) polypyridyl complexes as sensitizers for nanocryst. TiO<sub>2</sub>)

RN 214000-95-0 CAPLUS

CN Ruthenate(4-), bis[1,10-phenanthroline-4,7-dicarboxylato(2-)- $\kappa N1, \kappa N10$ ]bis(thiocyanato- $\kappa N$ )-, tetrahydrogen, (OC-6-21)-(9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 31 THERE ARE 31 CAPLUS RECORDS THAT CITE THIS RECORD (31 CITINGS)

REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 60 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2000:59987 CAPLUS

DOCUMENT NUMBER: 132:130757

TITLE: Metal complexes useful as sensitizers, oxide semiconductor electrodes and solar batteries

INVENTOR(S): Sugihara, Hideki; Arakawa, Hironori; Sayama, Kazuhiro; Singh, Pratap; Najerdin, Muhamed K.; Gretzel, Michael

PATENT ASSIGNEE(S): Agency of Industrial Sciences and Technology, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000026487	A	20000125	JP 1998-199402	19980715
JP 2997773	B1	20000111		
US 6278056	B1	20010821	US 1999-271163	19990318
EP 975026	A2	20000126	EP 1999-302185	19990322
EP 975026	A3	20000322		
EP 975026	B1	20060215		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO

PRIORITY APPLN. INFO.: JP 1998-199402 A 19980715

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB Pigments with wide optical absorption wavelength range and large optical absorption rate, oxide semiconductor electrodes with the pigments attached to the surface, as well as solar cells containing the electrodes are provided. The metal complexes have expressions (X)<sub>n</sub>ML<sub>1</sub>L<sub>2</sub>, (X)<sub>2</sub>M(L<sub>1</sub>)<sub>2</sub>, and (L<sub>1</sub>)<sub>2</sub>ML<sub>2</sub> are provided, where M = Group VIII metals, X = polar group, L<sub>1</sub> = phenanthroline containing ≥1 neutralizable carboxylic group, and L<sub>2</sub> = N-containing polycyclic compds. with possible substituents, and n = 1 or 2. The metal complexes are absorbed by the oxide semiconductor electrodes formed on conducting surface, and solar cells consist of the electrodes, facing electrodes and redox electrolytes in contact with the electrodes.

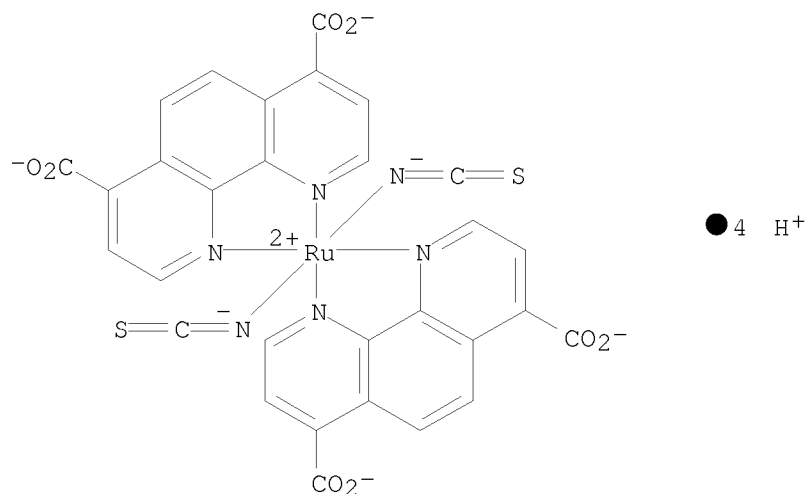
IT 214000-95-0

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(metal complexes useful as sensitizers, oxide semiconductor electrodes and solar batteries)

RN 214000-95-0 CAPLUS

CN Ruthenate(4-), bis[1,10-phenanthroline-4,7-dicarboxylato(2-)-κN1,κN10]bis(thiocyanato-κN)-, tetrahydrogen, (OC-6-21)-(9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 14 THERE ARE 14 CAPLUS RECORDS THAT CITE THIS RECORD (14 CITINGS)

L6 ANSWER 61 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1998:654671 CAPLUS

DOCUMENT NUMBER: 129:278385

ORIGINAL REFERENCE NO.: 129:56707a, 56710a

TITLE: Efficient photosensitization of nanocrystalline TiO<sub>2</sub> films by a new class of sensitizer: cis-dithiocyanato bis(4,7-dicarboxy-1,10-phenanthroline)ruthenium(II)

AUTHOR(S): Sugihara, Hideki; Singh, Lok Pratap; Sayama, Kazuhiro; Arakawa, Hironori; Nazeeruddin, Md. K.; Gratzel, Michael

CORPORATE SOURCE: National Institute of Materials and Chemical Research, Ibaraki, 305-8565, Japan

SOURCE: Chemistry Letters (1998), (10), 1005-1006

CODEN: CMLTAG; ISSN: 0366-7022

PUBLISHER: Chemical Society of Japan

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new class of ruthenium(II) complexes containing carboxylated 1,10-phenanthroline were synthesized. Photosensitization of nanocryst. TiO<sub>2</sub> electrode by bis(tetrabutylammonium)dihydronium cis-dithiocyanato bis(4,7-dicarboxy-1,10-phenanthroline)ruthenium(II) showed a high incident photon-to-current conversion efficiency (70% at 540 nm). The overall solar-to-elec. power conversion efficiency of 6.1% was obtained at AM-1.5 (100 mW/cm<sup>2</sup>).

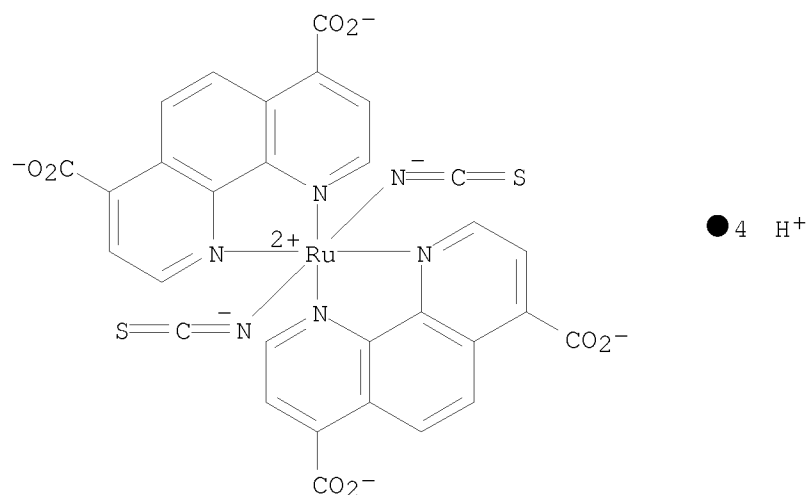
IT 214000-95-0 214001-25-9

RL: TEM (Technical or engineered material use); USES (Uses)

(efficient photosensitization of nanocryst. TiO<sub>2</sub> films by cis-dithiocyanato bis(4,7-dicarboxy-1,10-phenanthroline)ruthenium(II))

RN 214000-95-0 CAPLUS

CN Ruthenate(4-), bis[1,10-phenanthroline-4,7-dicarboxylato(2-)-κN1,κN10]bis(thiocyanato-κN)-, tetrahydrogen, (OC-6-21)-(9CI) (CA INDEX NAME)

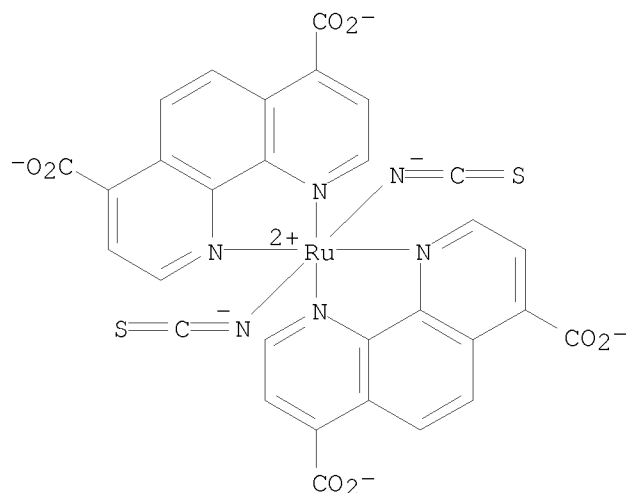


RN 214001-25-9 CAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, hydrogen (OC-6-21)-bis[1,10-phenanthroline-4,7-dicarboxylato(2-)-κN1,κN10]bis(thiocyanato-κN)ruthenate(4-) (2:2:1) (9CI) (CA INDEX NAME)

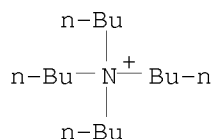
10/585,013

CRN 214001-24-8  
CMF C30 H12 N6 O8 Ru S2  
CCI CCS



CM 2

CRN 10549-76-5  
CMF C16 H36 N



OS.CITING REF COUNT: 32 THERE ARE 32 CAPLUS RECORDS THAT CITE THIS RECORD (32 CITINGS)  
REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 62 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1998:540877 CAPLUS

DOCUMENT NUMBER: 129:307027

ORIGINAL REFERENCE NO.: 129:62567a, 62570a

TITLE: Ruthenate(VI)-catalyzed dehydrogenation of primary amines to nitriles, crystal structures of cis-[Ru(bipy)<sub>2</sub>(NH<sub>2</sub>CH<sub>2</sub>Ph)<sub>2</sub>][PF<sub>6</sub>]<sub>2</sub>·0.5MeOH and cis-[Ru(bipy)<sub>2</sub>(NPh)<sub>2</sub>][PF<sub>6</sub>]<sub>2</sub>·CH<sub>2</sub>Cl<sub>2</sub>

AUTHOR(S): Griffith, William P.; Reddy, Bharti; Shoair, Abdel G. F.; Suriaatmaja, Maria; White, Andrew J. P.; Williams, David J.

CORPORATE SOURCE: Department of Chemistry, Inorganic Chemistry and Chemical Crystallographic Laboratories, Imperial College of Science, Technology and Medicine, London, SW7 2AY, UK

SOURCE: Journal of the Chemical Society, Dalton Transactions:

Inorganic Chemistry (1998), (17), 2819-2826

CODEN: JCDBI; ISSN: 0300-9246

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Catalytic dehydrogenation of benzylic and other primary amines  $\text{RCH}_2\text{NH}_2$  to the corresponding nitriles  $\text{RCN}$  by the system  $\text{trans}[\text{Ru}(\text{OH})_2\text{O}_3]_2\text{-S}_2\text{O}_8^{2-}$  has been investigated. The complex  $\text{cis}[\text{Ru}(\text{bipy})_2(\text{NH}_2\text{CH}_2\text{Ph})_2]^{2+}$  and the new  $\text{cis}[\text{Ru}(\text{bipy})_2(\text{NH}_2\text{CH}_2\text{R})_2]^{2+}$  ( $\text{R} = \text{o-}, \text{m-}$  or  $\text{p-ClC}_6\text{H}_4$ ,  $\text{o-MeC}_6\text{H}_4$ ,  $\text{o-}$  or  $\text{p-MeOC}_6\text{H}_4$ );  $\text{cis}[\text{Ru}(\text{phen})_2(\text{NH}_2\text{CH}_2\text{R})_2]^{2+}$  ( $\text{R} = \text{Ph}$  or  $\text{p-MeOC}_6\text{H}_4$ ) and  $\text{cis}[\text{Os}(\text{bipy})_2(\text{NH}_2\text{CH}_2\text{Ph})_2]^{2+}$  have been made, and dehydrogenation of the coordinated amine in the ruthenium complexes to the corresponding nitriles in  $\text{cis}[\text{Ru}(\text{L-L})_2(\text{NCR})_2]^{2+}$  ( $\text{L-L} = \text{bipy}$  or  $\text{phen}$ ) by peroxodisulfate demonstrated. The crystal structures of  $\text{cis}[\text{Ru}(\text{bipy})_2(\text{NH}_2\text{CH}_2\text{Ph})_2][\text{PF}_6] \cdot 0.5\text{MeOH}$  and  $\text{cis}[\text{Ru}(\text{bipy})_2(\text{NCPh})_2][\text{PF}_6]_2 \cdot \text{CH}_2\text{Cl}_2$ , the latter a product of coordinated amine dehydrogenation by peroxodisulfate to give  $\text{cis}[\text{Ru}(\text{bipy})_2(\text{NH}_2\text{CH}_2\text{Ph})_2]^{2+}$ , were determined. Raman, IR and  $^1\text{H}$  NMR data for the complexes have been measured; the latter suggest that the *cis* configurations of the amine complexes are retained in solution.

IT 214410-97-6P 214410-99-8P 214411-02-6P  
214411-05-9P

RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation);  
PREP (Preparation); USES (Uses)

(ruthenate(VI))-catalyzed dehydrogenation of primary amines to nitriles  
and crystal structures of *cis*-  
 $[\text{Ru}(\text{bipy})_2(\text{NH}_2\text{CH}_2\text{Ph})_2][\text{PF}_6]_2 \cdot 0.5\text{MeOH}$  and  
*cis*- $[\text{Ru}(\text{bipy})_2(\text{NCPh})_2][\text{PF}_6]_2 \cdot \text{CH}_2\text{Cl}_2$ )

RN 214410-97-6 CAPLUS

CN Ruthenium(2+), bis(benzenemethanamine)bis(1,10-phenanthroline-  
 $\kappa\text{N}1, \kappa\text{N}10$ )-, (OC-6-21)-, bis[hexafluorophosphate(1-)],  
monohydrate (9CI) (CA INDEX NAME)

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CRN 214410-96-5

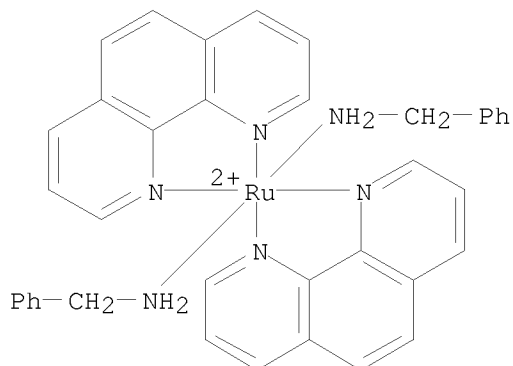
CMF C38 H34 N6 Ru . 2 F6 P

CM 2

CRN 214410-95-4

CMF C38 H34 N6 Ru

CCI CCS





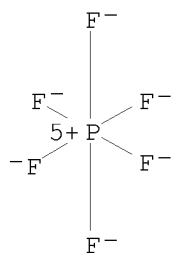
10/585,013

CM 3

CRN 16919-18-9

CMF F6 P

CCI CCS



RN 214410-99-8 CAPLUS

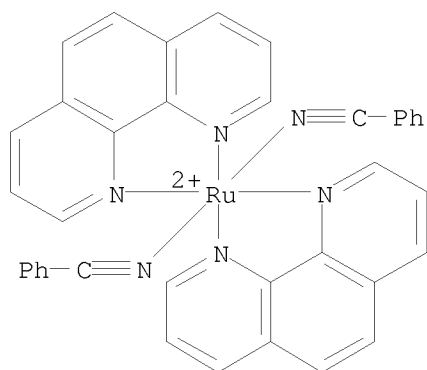
CN Ruthenium(2+), bis(benzonitrile)bis(1,10-phenanthroline-  
κN1,κN10)-, (OC-6-22)-, bis[hexafluorophosphate(1-)] (9CI)  
(CA INDEX NAME)

CM 1

CRN 214410-98-7

CMF C38 H26 N6 Ru

CCI CCS



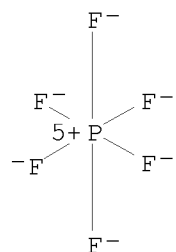
CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS

10/585,013



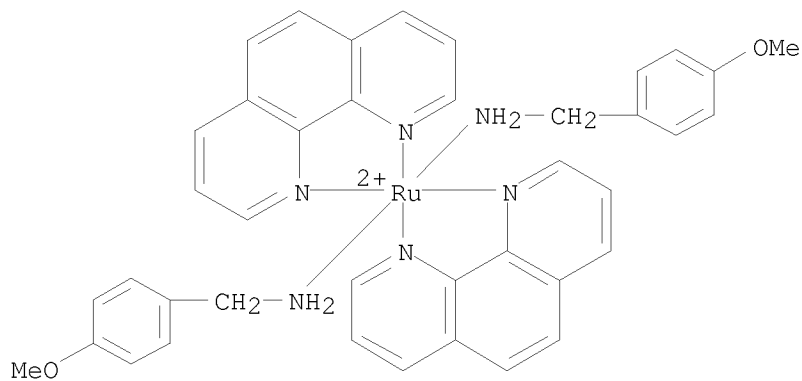
RN 214411-02-6 CAPLUS  
CN Ruthenium(2+), bis(4-methoxybenzenemethanamine-κN)bis(1,10-phenanthroline-κN1,κN10)-, (OC-6-21)-, bis[hexafluorophosphate(1-)], monohydrate (9CI) (CA INDEX NAME)

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CRN 214411-01-5  
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CM 2

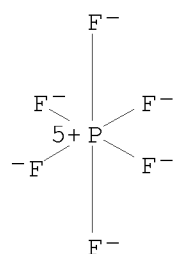
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CMF C40 H38 N6 O2 Ru  
CCI CCS



CM 3

CRN 16919-18-9  
CMF F6 P  
CCI CCS

10/585,013



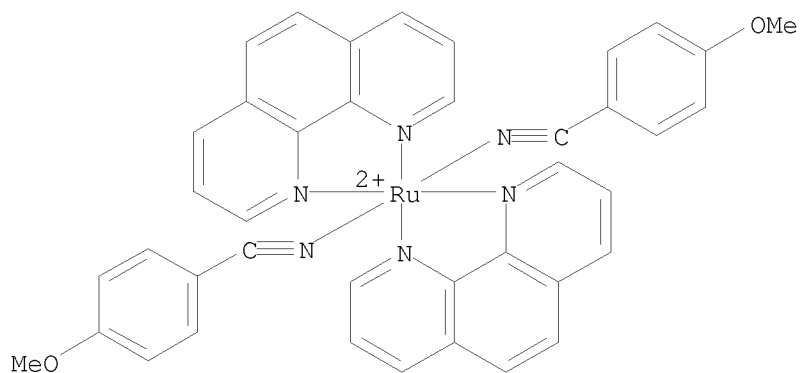
RN 214411-05-9 CAPLUS  
CN Ruthenium(2+), bis(4-methoxybenzonitrile- $\kappa$ N)bis(1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-, (OC-6-22)-, bis[hexafluorophosphate(1-)], monohydrate (9CI) (CA INDEX NAME)

CM 1

CRN 214411-04-8  
CMF C40 H30 N6 O2 Ru . 2 F6 P

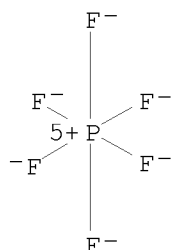
CM 2

CRN 214411-03-7  
CMF C40 H30 N6 O2 Ru  
CCI CCS



CM 3

CRN 16919-18-9  
CMF F6 P  
CCI CCS



OS.CITING REF COUNT: 21 THERE ARE 21 CAPLUS RECORDS THAT CITE THIS  
RECORD (21 CITINGS)  
REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 63 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1997:238289 CAPLUS

DOCUMENT NUMBER: 126:301130

ORIGINAL REFERENCE NO.: 126:58157a, 58160a

TITLE: Application of Capillary Electrophoresis for the  
Assessment of Enantiomeric Purity of  $\alpha$ -Diimine  
Transition Metal Complexes

AUTHOR(S): Shelton, Chris M.; Seaver, Kathryn E.; Wheeler, John  
F.; Kane-Maguire, Noel A. P.

CORPORATE SOURCE: Department of Chemistry, Furman University,  
Greenville, AR, 29613, USA

SOURCE: Inorganic Chemistry (1997), 36(8), 1532-1533  
CODEN: INOCAJ; ISSN: 0020-1669

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The authors report here the versatility and convenience of capillary electrophoresis (CE) for the determination of enantiomeric purity of a range of transition metal complexes containing  $\alpha$ -diimine ligands. At operating voltages of 10-20 kV, injection of millimolar solns. of racemic  $M(\alpha\text{-diimine})_2^{3+}$  species ( $M = \text{Ru}^{2+}, \text{Ni}^{2+}, \text{Fe}^{2+}$ ;  $\alpha\text{-diimine} = 1,10\text{-phenanthroline or } 2,2'\text{-bipyridine}$ ) into a capillary containing 25 mM phosphate buffer (pH 7) and 100 mM potassium antimony d-tartrate results in effective sepns. of the resp.  $\Lambda$  and  $\Delta$  optical isomers. Similar results are obtained with the related  $\text{cis-Ru}(\alpha\text{-diimine})_2(\text{py})_2^{2+}$ ,  $\text{cis-Ru}(\alpha\text{-diimine})_2(\text{CH}_3\text{CN})_2^{2+}$  and  $\text{cis-Ru}(\alpha\text{-diimine})_2(\text{H}_2\text{O})_2^{2+}$  complexes. In each case the enantiomeric order of elution was established by coinjecting racemic analytes with samples of either the  $\Lambda$  or  $\Delta$  isomer. Using these procedures, the optical purity of partially resolved species is rapidly established from a single injection. With the increasing availability of modestly priced and user-friendly CE instrumentation, this method for determining enantiomeric purity offers several practical advantages over conventional NMR procedures using chiral shift reagents: less sample is required, no deuterated solvents are employed, and the method is not restricted to diamagnetic analytes. Finally, when calf thymus B-DNA serves as the chiral medium in 50 mM ammonium acetate buffer (pH 5), near-baseline sepns. of the  $\Lambda$  and  $\Delta$  isomers of  $\text{Ru}(\text{phen})_3^{3+}$  and  $\text{Ru}(\text{bpy})_3^{3+}$  are effected. Therefore, the authors also anticipate applications in the area of chiral recognition and preferential binding of metal complexes to biol. mols.

IT 85370-14-5,  $\text{cis-Bis}(\text{acetonitrile})\text{bis}(1,10\text{-phenanthroline})\text{ruthenium}(2+)$  181784-43-0,

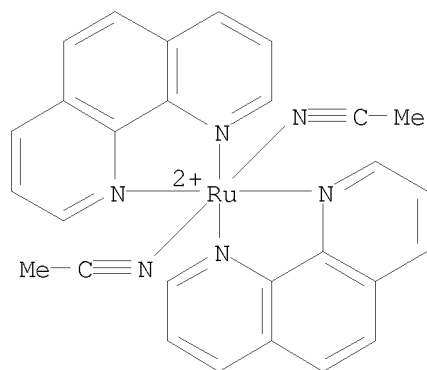
10/585,013

$\Delta$ -cis-Bis(acetonitrile)bis(1,10-phenanthroline)ruthenium(2+)  
181784-45-2,  $\Delta$ -cis-Bis(acetonitrile)bis(1,10-phenanthroline)ruthenium(2+)

RL: ANT (Analyte); ANST (Analytical study)  
( $\alpha$ -diimine transition metal complexes resolution by capillary electrophoresis using potassium antimony d-tartrate)

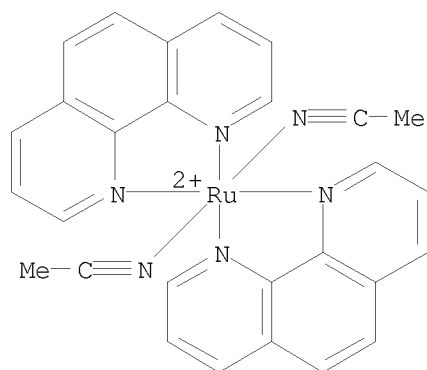
RN 85370-14-5 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-, (OC-6-22)- (CA INDEX NAME)



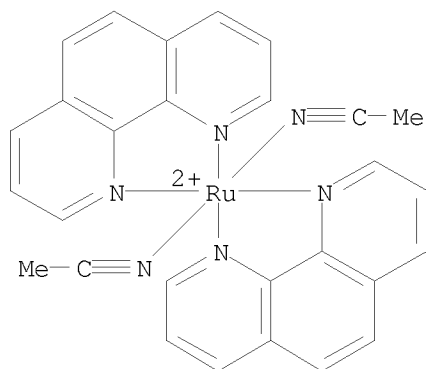
RN 181784-43-0 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-, (OC-6-22- $\Delta$ )- (CA INDEX NAME)



RN 181784-45-2 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-, (OC-6-22- $\Delta$ )- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 27 THERE ARE 27 CAPLUS RECORDS THAT CITE THIS RECORD (27 CITINGS)  
 REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 64 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1997:140830 CAPLUS

DOCUMENT NUMBER: 126:154089

ORIGINAL REFERENCE NO.: 126:29711a, 29714a

TITLE: Photophysics of Ru(phen)<sub>2</sub>(PHEHAT)<sub>2</sub><sup>+</sup>: A Novel "Light Switch" for DNA and Photo-oxidant for Mononucleotides  
 AUTHOR(S): Moucheron, Cecile; Kirsch-De Mesmaeker, Andree; Choua, S.

CORPORATE SOURCE: Physical Organic Chemistry, Universite Libre de Bruxelles, Brussels, B-1050, Belg.

SOURCE: Inorganic Chemistry (1997), 36(4), 584-592  
 CODEN: INOCAJ; ISSN: 0020-1669

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 126:154089

AB The spectroelectrochem. properties of a novel light switch for DNA, Ru(phen)<sub>2</sub>(PHEHAT)<sub>2</sub><sup>+</sup> (phen = 1,10-phenanthroline; PHEHAT = 1,10-phenanthroline[5,6-b]1,4,5,8,9,12-hexaazatriphenylene), are examined and compared to those of Ru(phen)<sub>2</sub>(DPPZ)<sub>2</sub><sup>+</sup> (DPPZ = dipyrrodo[3,2-a;2',3'-c]phenazine) and Ru(phen)<sub>2</sub>(HAT)<sub>2</sub><sup>+</sup> (HAT = 1,4,5,8,9,12-hexaazatriphenylene). The excited Ru(phen)<sub>2</sub>(PHEHAT)<sub>2</sub><sup>+</sup> luminesces in organic solvents but not in water. It is shown that the orbitals involved in the absorption and luminescence spectroscopy are not the same as those in the electrochem. In aqueous solution, this complex luminesces upon intercalation of the PHEHAT ligand into the stacking of the DNA bases. Two modes of distribution of the complex on DNA can be evidenced from the titration curves of the complex with DNA. Laser flash photolysis expts. show that the excited state is able to abstract an electron from GMP (guanosine-5'-monophosphate) with a rather low efficiency, leading to the reduced complex and oxidized GMP. However, this process is not accompanied by the formation of photoproduct with GMP and cannot be detected with DNA on the time scale of the expts.

IT 47668-18-8P

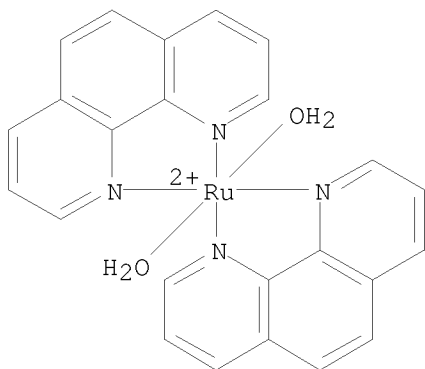
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and photophysics of Ru(phen)<sub>2</sub>(PHEHAT)<sub>2</sub><sup>+</sup> and its intercalation by DNA and photooxidn. of GMP)

RN 47668-18-8 CAPLUS

10/585,013

CN Ruthenium(2+), diaquabis(1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-,  
(OC-6-22)- (CA INDEX NAME)



OS.CITING REF COUNT: 117 THERE ARE 117 CAPLUS RECORDS THAT CITE THIS  
RECORD (120 CITINGS)  
REFERENCE COUNT: 66 THERE ARE 66 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 65 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1996:753730 CAPLUS

DOCUMENT NUMBER: 126:150842

ORIGINAL REFERENCE NO.: 126:29049a,29052a

TITLE: Crystal structure of  
aquabis(2,9-dimethyl-1,10-phenanthroline)-p-  
toluenesulfonatoruthenium(II)  
p-toluenesulfonate-methanol-hydrate(1/2/2),  
[Ru(C14H12N2)2(CH3C6H4SO3)(OH2)]CH3C6H4SO3.2CH3OH.2H2O

AUTHOR(S): Reibenspies, J. H.; Darensbourg, D. J.; Benyei, A. C.  
CORPORATE SOURCE: Department Chemistry, Texas A and M University, TX,  
77843, USA

SOURCE: Zeitschrift fuer Kristallographie (1996), 211(12),  
977-979  
CODEN: ZEKRDZ; ISSN: 0044-2968

PUBLISHER: Oldenbourg

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The title compound is triclinic, space group P.hivin.1, a 9.663(5), b  
15.10(2), c 15.387(8) Å,  $\alpha$  82.32(7),  $\beta$  80.46(4),  $\gamma$   
82.32(7)°; Z = 2; R = 0.073, Rw(F2) = 0.184 for 7661 reflections.  
Atomic coordinates are given.

IT 186538-39-6  
RL: PRP (Properties)  
(crystal structure of)

RN 186538-39-6 CAPLUS

CN Ruthenium(1+), aquabis(2,9-dimethyl-1,10-phenanthroline-  
 $\kappa$ N1, $\kappa$ N10)(4-methylbenzenesulfonato- $\kappa$ O)-, (OC-6-33)-,  
salt with 4-methylbenzenesulfonic acid, compd. with methanol (1:1:2),  
dihydrate (9CI) (CA INDEX NAME)

CM 1

CRN 67-56-1

CMF C H4 O

10/585,013

H<sub>3</sub>C—OH

CM 2

CRN 186538-38-5

CMF C35 H33 N4 O4 Ru S . C7 H7 O3 S

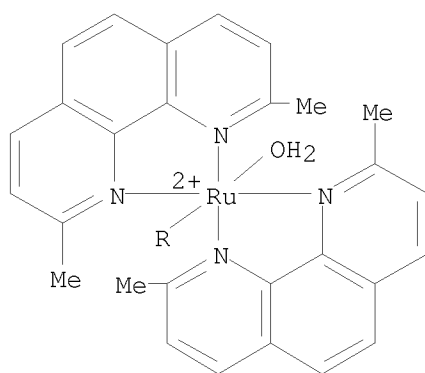
CM 3

CRN 186538-37-4

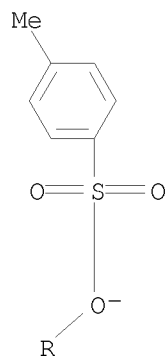
CMF C35 H33 N4 O4 Ru S

CCI CCS

PAGE 1-A



PAGE 2-A

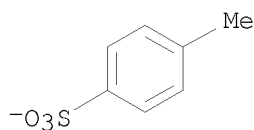


CM 4

CRN 16722-51-3

CMF C7 H7 O3 S





OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
(1 CITINGS)

L6 ANSWER 66 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1996:477628 CAPLUS

DOCUMENT NUMBER: 125:236793

ORIGINAL REFERENCE NO.: 125:43955a, 43958a

TITLE: The resolution of  $\text{cis-[Ru(phen)}_2\text{(CH}_3\text{CN)}_2\text{]}^{2+}$  (phen = 1,10-phenanthroline), and its use in the synthesis of chiral  $\text{cis-[Ru(phen)}_2\text{X}_2\text{]}^{n+}$  species ( $n = 0, 2$ ;  $\text{X} = \text{CN}^-$ ,  $\text{Cl}^-$ , py)

AUTHOR(S): Watson, Rhett T.; Jackson, , Joseph L. Jr.; Harper, James D.; Kane-Maguire, Kimberlee A.; Kane-Maguire, Leon A. P.; Kane-Maguire, Noel A. P.

CORPORATE SOURCE: Department of Chemistry, Furman University, Greenville, SC, 29613, USA

SOURCE: Inorganica Chimica Acta (1996), 249(1), 5-7  
CODEN: ICHAA3; ISSN: 0020-1693

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A convenient general method is described for the isolation of optically active Ru(II) complexes,  $\text{cis-[Ru(phen)}_2\text{X}_2\text{]}^{n+}$ . The resolution strategy involves the initial preparation of the  $\Lambda$  and  $\Lambda$  isomers of  $\text{cis-[Ru(phen)}_2\text{(MeCN)}_2\text{]}(\text{PF}_6)_2$ . These precursor compds. were characterized by UV-visible,  $^1\text{H}$  NMR and CD spectral anal., while enantiomeric purity was verified by conversion to optically active  $[\text{Ru(phen)}_3]^{2+}$ . Subsequent nucleophilic displacement of both coordinated MeCN by  $\text{X}^-$  ( $\text{X}^- = \text{CN}^-$ ,  $\text{Cl}^-$ , py) proceeds with near complete retention of configuration. The isolation of the optically active neutral species  $\text{cis-[Ru(phen)}_2\text{(CN)}_2\text{]}$  and  $\text{cis-[Ru(phen)}_2\text{Cl}_2\text{]}$  is significant, since the traditional resolution method via diastereoisomer formation is not directly applicable. Also,  $\text{cis-[Ru(phen)}_2\text{(CN)}_2\text{]}$  may serve as a valuable chiral building block for an extensive series of polymetallic complexes where  $\text{CN}^-$  functions as a bridging ligand. The availability of authentic samples of resolved  $\text{cis-[Ru(phen)}_2\text{Cl}_2\text{]}$  is important for the quant. assessment of stereoselectivity in the covalent binding of such racemic complexes with DNA.

IT 181579-78-2P

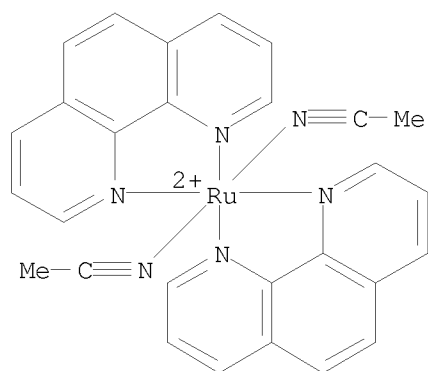
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(of ruthenium phenanthroline acetonitrile/cyano/chloro complexes)

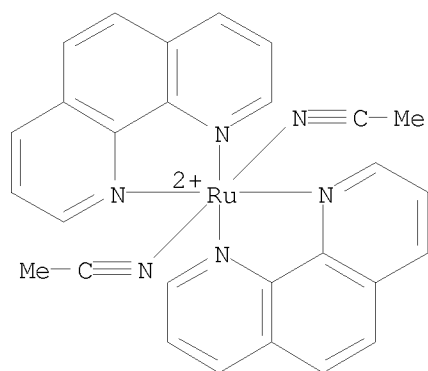
RN 181579-78-2 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-N1,N10)-, diiodide, (OC-6-22)- (9CI) (CA INDEX NAME)

10/585,013

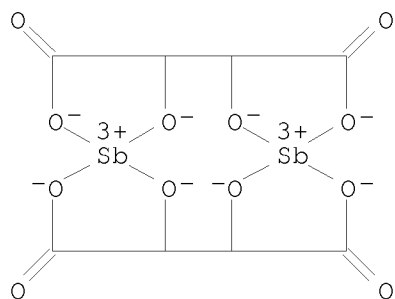


IT 181784-44-1P 181784-46-3P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and formation of PF<sub>6</sub><sup>-</sup> salt)  
RN 181784-44-1 CAPLUS  
CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-N1,N10)-,  
(OC-6-22-Δ)-, stereoisomer of  
bis[μ-[2,3-dihydroxybutanedioato(4-)-O1,O2:O3,O4]]diantimonate(2-)  
(1:1) (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 181784-43-0  
CMF C28 H22 N6 Ru  
CCI CCS



CM 2  
  
CRN 12544-35-3  
CMF C8 H4 O12 Sb2  
CCI CCS

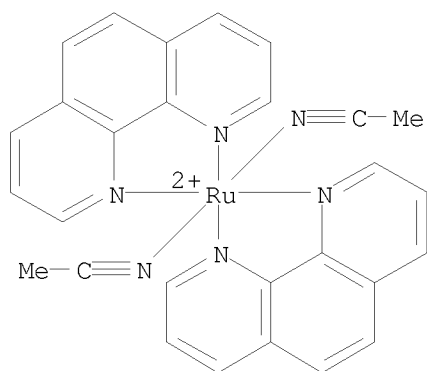
10/585,013



RN 181784-46-3 CAPLUS  
CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-N1,N10)-,  
(OC-6-22-A)-, stereoisomer of  
bis[μ-[2,3-dihydroxybutanedioato(4-)-O1,O2:O3,O4]]diantimonate(2-)  
(1:1) (9CI) (CA INDEX NAME)

CM 1

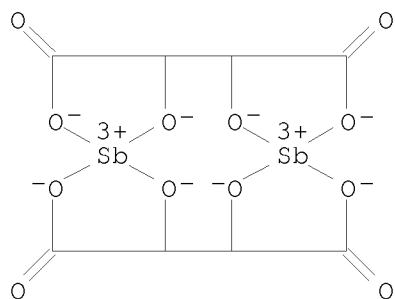
CRN 181784-45-2  
CMF C28 H22 N6 Ru  
CCI CCS



CM 2

CRN 12544-35-3  
CMF C8 H4 O12 Sb2  
CCI CCS

10/585,013



IT 181784-47-4P  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP  
(Preparation); RACT (Reactant or reagent)  
(preparation, CD spectra and reaction with NaCN)

RN 181784-47-4 CAPLUS

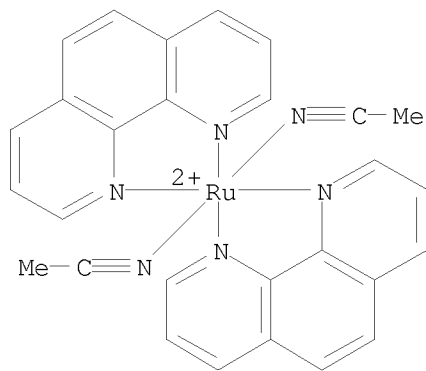
CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-N1,N10)-,  
(OC-6-22-Δ)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 181784-43-0

CMF C28 H22 N6 Ru

CCI CCS



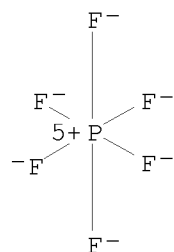
CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS

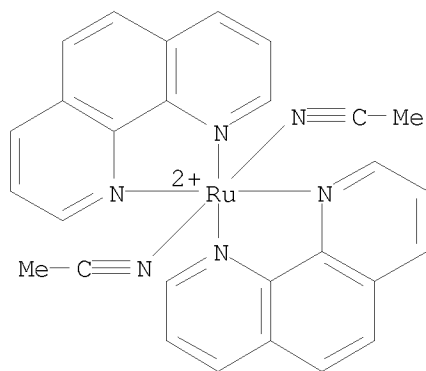
10/585,013



IT 181784-48-5P  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation, CD spectra and reaction with pyridine and HCl)  
RN 181784-48-5 CAPLUS  
CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-  
κN1,κN10)-, (OC-6-22-A)-, bis[hexafluorophosphate(1-)]  
(9CI) (CA INDEX NAME)

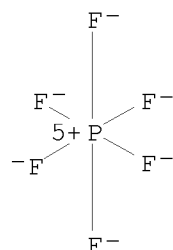
CM 1

CRN 181784-45-2  
CMF C28 H22 N6 Ru  
CCI CCS



CM 2

CRN 16919-18-9  
CMF F6 P  
CCI CCS



OS.CITING REF COUNT: 19 THERE ARE 19 CAPLUS RECORDS THAT CITE THIS RECORD (19 CITINGS)

L6 ANSWER 67 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1995:708262 CAPLUS

DOCUMENT NUMBER: 123:198011

ORIGINAL REFERENCE NO.: 123:35337a,35340a

TITLE: Catalytic oxidation of hydrocarbons by ruthenium complexes with bulky ligands

AUTHOR(S): Tsuruya, Shigeru

CORPORATE SOURCE: Fac. Eng., Kobe Univ., Kobe, 657, Japan

SOURCE: Shokubai (1995), 37(4), 312-13

CODEN: SHKUAJ; ISSN: 0559-8958

PUBLISHER: Shokubai Gakkai

DOCUMENT TYPE: Journal; General Review

LANGUAGE: Japanese

AB A review with 6 refs. on the epoxidn. of norbornene by [Ru(dmp)2(CH3CN)2](PF6)2. A cis-ruthenium-oxo complex is considered as an intermediate.

IT 133090-93-4

RL: CAT (Catalyst use); USES (Uses)

(catalytic oxidation of hydrocarbons by ruthenium complexes with bulky ligands)

RN 133090-93-4 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(2,9-dimethyl-1,10-phenanthroline-κN1,κN10)-, (OC-6-22)-, bis[hexafluorophosphate(1-)] (9CI)  
(CA INDEX NAME)

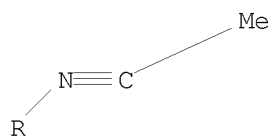
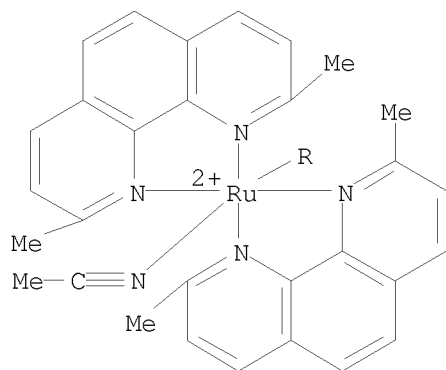
CM 1

CRN 99547-22-5

CMF C32 H30 N6 Ru

CCI CCS

10/585,013

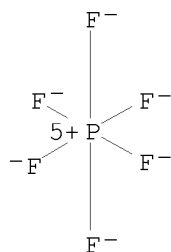


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



L6 ANSWER 68 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1995:657325 CAPLUS

DOCUMENT NUMBER: 123:325451

ORIGINAL REFERENCE NO.: 123:58119a, 58122a

TITLE: Electron distribution in excited state of  
[(OC)<sub>5</sub>W(4,4'-bpy)W(CO)<sub>5</sub>](4,4'-bpy = 4,4'-bipyridyl)  
determined by time-resolved infrared spectroscopy.  
Vibrational and electronic spectroscopy of  
electronically excited polychromophoric ruthenium(II)  
complexes

AUTHOR(S): Vicek, Antonin, Jr.

CORPORATE SOURCE: J. Heyrovsky Inst. Phys. Chemistry, Academy Sciences,  
Prague, Czech Rep.

SOURCE: Chemtracts: Inorganic Chemistry (1994), 6(3), 237-42  
CODEN: CICHED; ISSN: 1051-7227

PUBLISHER: Data Trace Chemistry Publishers, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Metal-ligand charge-transfer excited state of  $[(OC)5W0(4,4'\text{-bpy})W0(CO)5]$ , derived from the excitation of a W  $d(\pi)$  electron to the bridging 4,4'-bpy ligand, has been characterized as a valence-localized  $*[(OC)5W0(4,4'\text{-bpy})W0(CO)5]$  species with spectroscopically distinct W1 and W0 centers. Lowest metal-ligand charge-transfer excited states of polychromophoric Ru-diimine complexes bridged by a charge-transfer-inactive CN<sup>-</sup> ligand are derived from the excitation of a Ru  $d(\pi)$  electron to the diimine ligand coordinated to the same Ru atom. In all cases studied, the excitation is localized on the Ru(diimine) unit with the largest number of N-coordinated CN<sup>-</sup> ligands. Lowest excited states of the Ru complexes studied are formulated and the two Ru atoms in the excited states are in spectroscopically distinct RuII and RuIII oxidation states.

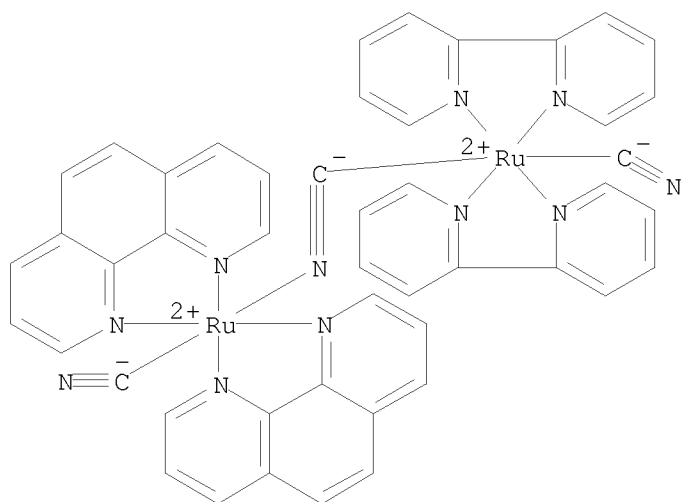
IT 170210-36-3

RL: PRP (Properties)

(metal-ligand charge-transfer excited states of)

RN 170210-36-3 CAPLUS

CN Ruthenium(1+), bis(2,2'-bipyridine-N,N') [ $\mu$ -(cyano-C:N)]bis(cyano-C)bis(1,10-phenanthroline-N1,N10)di- (9CI) (CA INDEX NAME)



L6 ANSWER 69 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1995:21156 CAPLUS

DOCUMENT NUMBER: 122:146849

ORIGINAL REFERENCE NO.: 122:27007a, 27010a

TITLE: The application of time-resolved step-scan FT-IR to the photodynamics of transition metal complexes and heme proteins

AUTHOR(S): Palmer, R. A.; Plunkett, S. E.; Dyer, R. B.; Schoonover, J. S.; Meyer, T. J.; Chao, J. L.

CORPORATE SOURCE: Dep. Chem., Duke Univ., Durham, NC, 27708-0346, USA

SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (1993), 2089(9TH INTERNATIONAL CO), 488-9

CODEN: PSISDG; ISSN: 0277-786X

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Time-resolved step-scan FT-IR spectroscopy is used to monitor two distinct



photoinduced processes. In the first, the third harmonic of a pulsed Nd:YAG laser (355 nm) is used to initiate a metal-to-ligand charge transfer process (MLCT) in a number of Ru(II) and/or Re(I) polypyridyl complexes. Changes in the position and shape of the vibrational signatures of  $\pi$ -back-bonding ligands such as CO and/or CN provide information about the changes in oxidation state of the metal resulting from electronic excitation. Changes in the other ligands vibrational bands indicate which is the electron acceptor (radical anion). In the second example, the second harmonic of the Nd:YAG laser (532 nm) pumps into the  $\beta$ -visible band of carbonmonoxymyoglobin (MbCO). This dissociates the Fe-CO bond of the heme prosthetic group, and the recombination process is observed as indicated by changes in the amide bands of the polypeptide chain. In both cases, these are some of the very few examples of fast (sub- $\mu$ s) TR FT-IR in the absorbance mode.

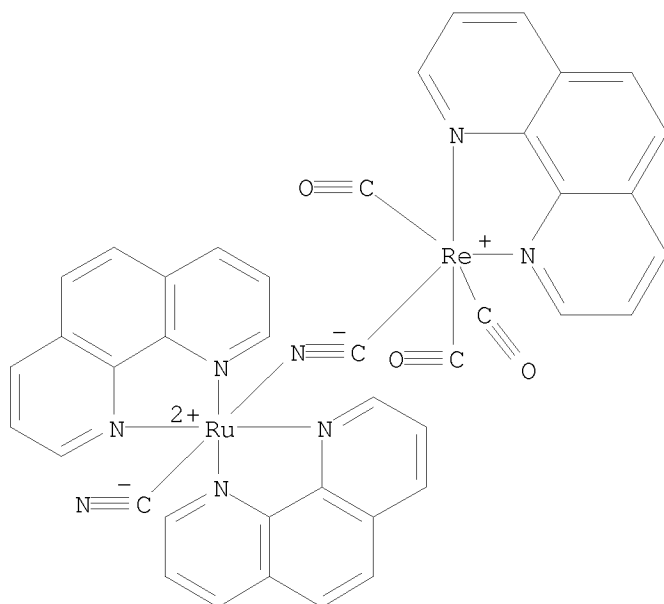
IT 144018-19-9

RL: USES (Uses)

(time resolved step-scan FT-IR spectroscopy study of photoinduced metal-to-ligand charge-transfer processes in transition metal complexes)

RN 144018-19-9 CAPLUS

CN Rhenium(1+), tricarbonyl [ $\mu$ -(cyano-C:N)] [(cyano-C)bis(1,10-phenanthroline-N1,N10)ruthenium] (1,10-phenanthroline-N1,N10)-(9CI) (CA INDEX NAME)



L6 ANSWER 70 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1994:551465 CAPLUS

DOCUMENT NUMBER: 121:151465

ORIGINAL REFERENCE NO.: 121:27241a, 27244a

TITLE: Covalent Binding of Aquaruthenium Complexes to DNA

AUTHOR(S): Grover, Neena; Welch, Thomas W.; Fairley, Terri A.;

Cory, Michael; Thorp, H. Holden

CORPORATE SOURCE: Department of Chemistry, University of North Carolina, Chapel Hill, NC, 27599, USA

SOURCE: Inorganic Chemistry (1994), 33(16), 3544-8

CODEN: INOCAJ; ISSN: 0020-1669

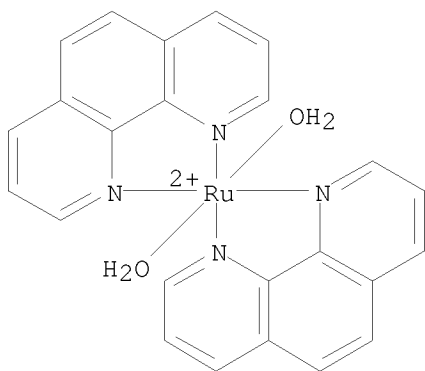
DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Thermal denaturation studies were performed on a group of mononuclear mono- and diaquapolypyridyl complexes of Ru(II) covalently bound to calf thymus DNA. Adducts of monofunctional complexes show small, pos. values of  $\Delta T_m$  (0.8-3.5). The adducts of difunctional complexes exhibit much larger values (6-13), and the thermal denaturation is irreversible, which is consistent with formation of an interstrand diadduct. The dinuclear complex  $[(bpy)_2Ru(OH_2)]^{2+}$  was also studied and found to bind stereoselectively to calf thymus DNA (bpy = 2,2'-bipyridine). CD spectroscopy showed the filtrate obtained from ultrafiltration of calf thymus DNA and  $[(bpy)_2Ru(OH_2)]^{2+}$  to be enriched in one enantiomer. The authors also report here the synthesis and electronic properties of the model complex  $[(bpy)_2(EtG)Ru(OH_2)]^{2+}$  (EtG = 9-ethylguanine). The complex is stable and possesses all of the characteristic electronic properties of the other polypyridylruthenium complexes. Surprisingly, the Ru(IV) form is accessible via electrochem. oxidation and is an effective DNA cleavage agent.

IT 47668-18-8  
 RL: PRP (Properties)  
 (DNA binding by, thermal denaturation studies of)

RN 47668-18-8 CAPLUS

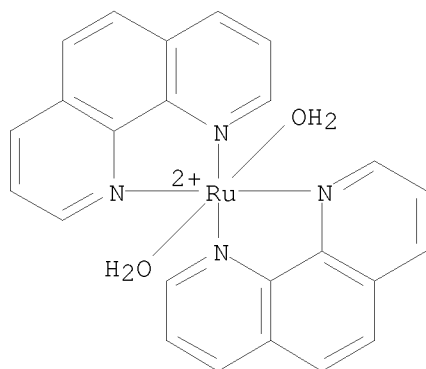
CN Ruthenium(2+), diaquabis(1,10-phenanthroline- $\kappa N1, \kappa N10$ )-,  
 (OC-6-22)- (CA INDEX NAME)



IT 47668-18-8D, adducts with DNA  
 RL: PRP (Properties)  
 (binding mode in, thermal denaturation studies of)

RN 47668-18-8 CAPLUS

CN Ruthenium(2+), diaquabis(1,10-phenanthroline- $\kappa N1, \kappa N10$ )-,  
 (OC-6-22)- (CA INDEX NAME)



OS.CITING REF COUNT: 39 THERE ARE 39 CAPLUS RECORDS THAT CITE THIS RECORD (39 CITINGS)

L6 ANSWER 71 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1994:333870 CAPLUS

DOCUMENT NUMBER: 120:333870

ORIGINAL REFERENCE NO.: 120:58509a,58512a

TITLE: Vibrational and Electronic Spectroscopy of Electronically Excited Polychromophoric Ruthenium(II) Complexes

AUTHOR(S): Bignozzi, Carlo A.; Argazzi, Roberto; Chiorboli, Claudio; Scandola, Franco; Dyer, R. Brian; Schoonover, Jon R.; Meyer, Thomas J.

CORPORATE SOURCE: Dipartimento di Chimica, Universita di Ferrara, Ferrara, 44100, Italy

SOURCE: Inorganic Chemistry (1994), 33(8), 1652-9  
CODEN: INOCAJ; ISSN: 0020-1669

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The metal to ligand charge-transfer excited states of the polychromophoric complexes  $[(\text{NC})(\text{bpy})_2\text{RuII}(\text{CN})\text{RuII}(\text{bpy})_2(\text{CN})]^+$ ,  $[(\text{NC})(\text{bpy})_2\text{RuII}(\text{CN})\text{RuII}(\text{phen})_2(\text{CN})]^+$ ,  $[(\text{NC})(\text{phen})_2\text{RuII}(\text{CN})\text{RuII}(\text{bpy})_2(\text{CN})]^+$ ,  $[(\text{NC})(\text{bpy})_2\text{RuII}(\text{CN})\text{RuII}(\text{bpy})_2(\text{NC})\text{RuII}(\text{bpy})_2(\text{CN})]^{2+}$ , and  $[\text{NC}(\text{bpy})_2\text{RuII}(\text{CN})\text{RuII}(\text{dcb})_2(\text{NC})\text{Ru}(\text{bpy})_2(\text{CN})]^{2-}$  (bpy = 2,2'-bipyridine, phen = 1,10-phenanthroline, dcb = 4,4'-dicarboxy-2,2'-bipyridine) and of model mononuclear complexes were studied in MeCN by time-resolved resonance Raman (TR3) and transient UV/visible absorption spectroscopy. The observation in the TR3 spectra of vibrations of a single type of reduced ligand and the cross check obtained by exchanging ligands around the metal centers provide unambiguous evidence for localization of the excited electron on the polypyridine ligand of the N-bonded (to bridging CN-) chromophore. The presence of excited-state intervalence transfer bands was inferred by the comparison of the transient absorbance spectra of the polynuclear complexes with the ground-state spectra of reduced and 1-electron oxidized forms and with the spectra of the excited mononuclear complexes. These comparisons indicate distinct Ru(II) and Ru(III) centers in the excited states of the polynuclear complexes.

IT 123099-59-2

RL: PRP (Properties)

(resonance Raman and transient UV spectra and redox potentials of)

RN 123099-59-2 CAPLUS

CN Ruthenium(1+), bis(2,2'-bipyridine-N,N') [ $\mu$ -(cyano-C:N)]bis(cyano-C)bis(1,10-phenanthroline-N1,N10)di-, stereoisomer,

10/585,013

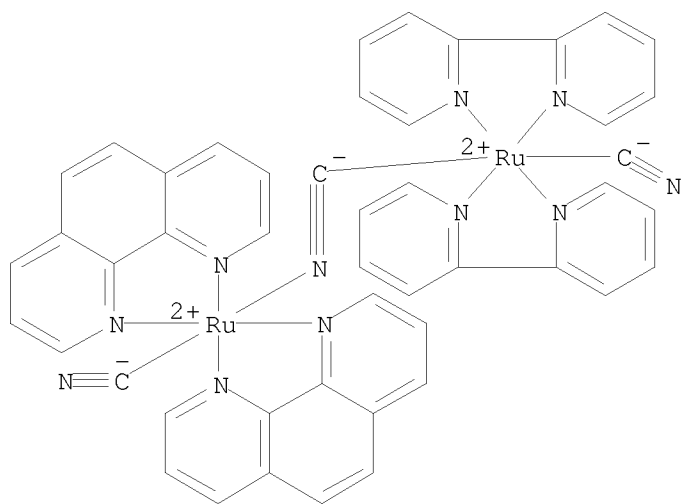
hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 123099-58-1

CMF C47 H32 N11 Ru2

CCI CCS

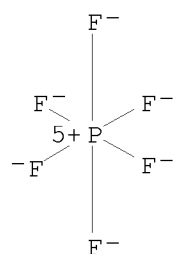


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 41 THERE ARE 41 CAPLUS RECORDS THAT CITE THIS RECORD (41 CITINGS)

L6 ANSWER 72 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1994:216219 CAPLUS

DOCUMENT NUMBER: 120:216219

ORIGINAL REFERENCE NO.: 120:38361a,38364a

TITLE: Catalytic Oxidation of Hydrocarbons with O<sub>2</sub> or H<sub>2</sub>O<sub>2</sub> Using a Sterically Hindered Ruthenium Complex

AUTHOR(S): Goldstein, Alan S.; Beer, Robert H.; Drago, Russell S.

CORPORATE SOURCE: Department of Chemistry, University of Florida, Gainesville, FL, 32611, USA

SOURCE: Journal of the American Chemical Society (1994),  
116(6), 2424-9  
CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The sterically hindered complex  $\text{cis-}[\text{Ru}(\text{dmp})_2(\text{S})_2](\text{PF}_6)_2$  [ $\text{S} = \text{H}_2\text{O}$  (2) or  $\text{CH}_3\text{CN}$  (3),  $\text{dmp}$  is 2,9-dimethyl-1,10-phenanthroline] catalyzes the oxidation of alkenes with dioxygen and alkanes with hydrogen peroxide under mild pressures (40-50 psig) and temps. (65-75°). The reaction of norbornene,  $\text{O}_2$ , and a catalytic amount of 3 affords 2,3-epoxynorbornene with 94% selectivity. Mechanistic expts. suggest that a free-radical reaction between 3, norbornene, and  $\text{O}_2$  occurs initially to generate a high-valent ruthenium oxo species involved in an oxygen atom-transfer catalytic cycle with  $\text{O}_2$ . In the presence of  $\text{H}_2\text{O}_2$  and a catalytic amount of 2 or 3, unactivated alkanes are hydroxylated. Studies of this reaction indicate a free-radical mechanism in which H atom abstraction is the rate-determining step ( $k_{\text{H}}/k_{\text{D}} = 4$  for cyclohexane).

IT 133090-93-4 133090-94-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation as catalyst for oxidation of hydrocarbons)

RN 133090-93-4 CAPLUS

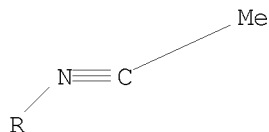
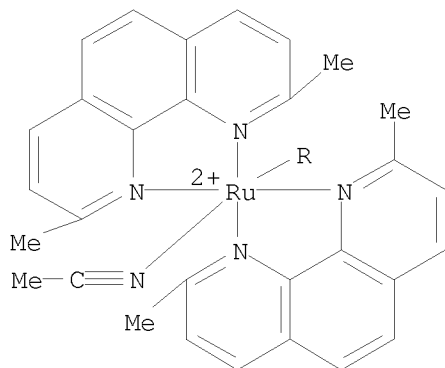
CN Ruthenium(2+), bis(acetonitrile)bis(2,9-dimethyl-1,10-phenanthroline- $\kappa\text{N}1, \kappa\text{N}10$ )-, (OC-6-22)-, bis[hexafluorophosphate(1-)] (9CI)  
(CA INDEX NAME)

CM 1

CRN 99547-22-5

CMF C32 H30 N6 Ru

CCI CCS



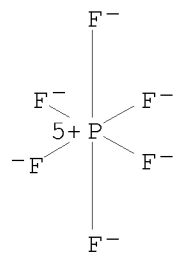
CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS

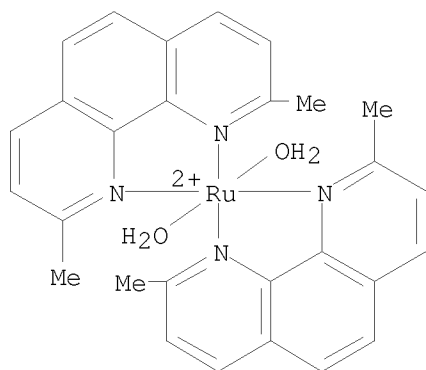
10/585,013



RN 133090-94-5 CAPLUS  
CN Ruthenium(2+), diaquabis(2,9-dimethyl-1,10-phenanthroline-  
κN1,κN10)-, (OC-6-22)-, hexafluorophosphate(1-) (1:2) (CA  
INDEX NAME)

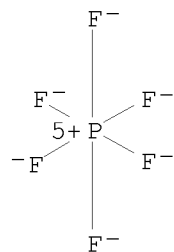
CM 1

CRN 99547-25-8  
CMF C28 H28 N4 O2 Ru  
CCI CCS



CM 2

CRN 16919-18-9  
CMF F6 P  
CCI CCS



OS.CITING REF COUNT: 147 THERE ARE 147 CAPLUS RECORDS THAT CITE THIS

## RECORD (148 CITINGS)

L6 ANSWER 73 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1994:77123 CAPLUS

DOCUMENT NUMBER: 120:77123

ORIGINAL REFERENCE NO.: 120:13869a,13872a

TITLE: Regenerable N-alkylamide hydroperoxide for catalytic substrate oxidation

AUTHOR(S): Patton, Douglas E.; Drago, Russell S.

CORPORATE SOURCE: Dep. Chem., Univ. Florida, Gainesville, FL, 32611, USA

SOURCE: Journal of the Chemical Society, Perkin Transactions

1: Organic and Bio-Organic Chemistry (1972-1999)  
(1993), (14), 1611-15

CODEN: JCPRB4; ISSN: 0300-922X

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 120:77123

AB The use of N-methylpyrrolidinone in a catalytic cycle employing O<sub>2</sub> and H<sub>2</sub> in the presence of transition metal catalysts provides a regenerative hydroperoxide system. When treated with O<sub>2</sub> at 75 °C, N-methylpyrrolidinone is converted into the corresponding hydroperoxide, 5-hydroperoxy-1-methylpyrrolidin-2-one. This stable hydroperoxide undergoes reactions similar to those of tert-Bu hydroperoxide, yielding N-methylsuccinimide as the product. By using either heterogeneous or homogeneous catalysts, N-methylsuccinimide can be reduced with H<sub>2</sub> under mild conditions to the hydroperoxide precursor, N-methylpyrrolidinone. The steps in the conversion of the hydroperoxide into N-methylsuccinimide were elucidated by study of the oxidation of PPh<sub>3</sub> to OPPh<sub>3</sub>. Oxygen-atom transfer from the hydroperoxide to the phosphine produces the amido alc. intermediate, 5-hydroxy-1-methylpyrrolidin-2-one. In the presence of O<sub>2</sub>, the amido alc. intermediate undergoes rapid oxidation to N-methylsuccinimide.

IT 133090-94-5

RL: CAT (Catalyst use); USES (Uses)

(catalysts, for reduction of methylsuccinimide)

RN 133090-94-5 CAPLUS

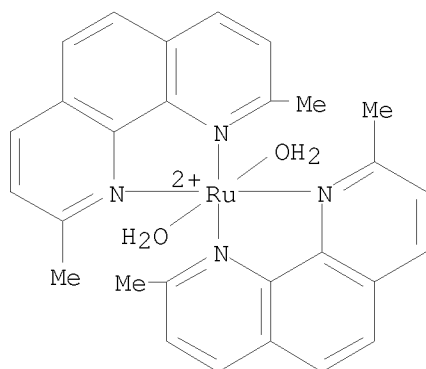
CN Ruthenium(2+), diaquabis(2,9-dimethyl-1,10-phenanthroline- $\kappa$ N1, $\kappa$ N10)-, (OC-6-22)-, hexafluorophosphate(1-) (1:2) (CA INDEX NAME)

CM 1

CRN 99547-25-8

CMF C28 H28 N4 O2 Ru

CCI CCS

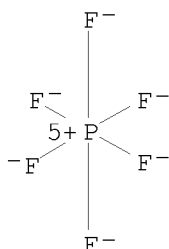


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD  
(4 CITINGS)

L6 ANSWER 74 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1993:685005 CAPLUS

DOCUMENT NUMBER: 119:285005

ORIGINAL REFERENCE NO.: 119:50735a,50738a

TITLE: Photophysical and photochemical properties of  
dinuclear ruthenium(II) complexes containing  
2,2'-bipyridine and 1,10-phenanthroline moieties

AUTHOR(S): Hughes, Helen P.; Martin, Ditanya; Bell, Stephen;  
McGarvey, John J.; Vos, Johannes G.

CORPORATE SOURCE: Sch. Chem. Sci., Dublin City Univ., Dublin, Ire.

SOURCE: Inorganic Chemistry (1993), 32(20), 4402-8

CODEN: INOCAJ; ISSN: 0020-1669

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The excited state and redox properties of new  
[Ru(bpy)2(bpt)Ru(phen)2](PF6)3 and [Ru(phen)2(bpt)Ru(bpy)2](PF6)3 (bpy =  
2,2'-bipyridine, phen = 1,10-phenanthroline, Hbpt =  
3,5-bis(pyridin-2-yl)-1,2,4-triazole) are reported and compared with those  
obtained for [Ru(bpy)2(bpt)]PF6.0.5H2O, [(Ru(bpy)2)2(bpt)](PF6)3, new  
[Ru(phen)2(bpt)]PF6.H2O, new [(Ru(phen)2)2(bpt)](PF6)3, [Ru(bpy)3]2+, and  
[Ru(phen)3]2+. Spectroelectrochem. data indicate that in all dinuclear  
comps. the Ru unit bound to the N1 site of the triazole ring is oxidized  
1st. In both [Ru(bpy)2(bpt)Ru(phen)2]3+ and [Ru(phen)2(bpt)Ru(bpy)2]3+  
the lowest 3MLCT state is bpy based. Upon photolysis in MeCN only the  
metal center bound to the N4-site of the triazole ring is labilized. In  
MeCN/Cl- and CH2Cl2/Cl- solns., both the N1 and N4 sites are  
photoreactive.

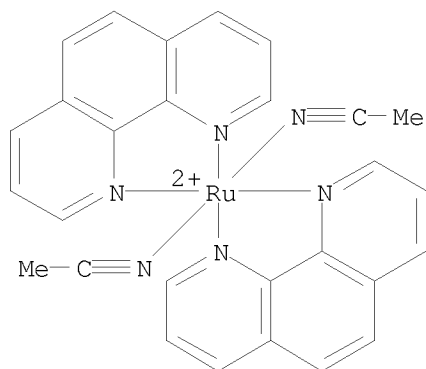
IT 151284-48-9P

RL: FORM (Formation, nonpreparative); PREP (Preparation)  
(formation of, in photolysis of ruthenium bis(pyridinyl)triazole  
diimine dinuclear complexes)

RN 151284-48-9 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-N1,N10)- (9CI)  
(CA INDEX NAME)





OS.CITING REF COUNT: 16 THERE ARE 16 CAPLUS RECORDS THAT CITE THIS  
RECORD (16 CITINGS)

L6 ANSWER 75 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1993:443761 CAPLUS

DOCUMENT NUMBER: 119:43761

ORIGINAL REFERENCE NO.: 119:7845a

TITLE: Non-photolytic cleavage of deoxyribonucleic acids with  
oxoruthenium(IV) complexes

INVENTOR(S): Thorp, H. Holden; Grover, Neena

PATENT ASSIGNEE(S): North Carolina State University, USA

SOURCE: U.S., 8 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5171853	A	19921215	US 1991-740048	19910805
PRIORITY APPLN. INFO.:			US 1991-740048	19910805

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB A method for cleaving DNA with coordination complexes of oxoruthenium(IV) without the need for UV photolysis is described. The coordination complexes are of the general structure L-RuIVO<sub>2</sub><sup>+</sup> (L= inert polypyridyl ligands; L contains 5 N bonded to RuIV by coordination bonds to form an octahedral structure). Preparation of several oxoruthenium(IV) complexes and their activities were shown.

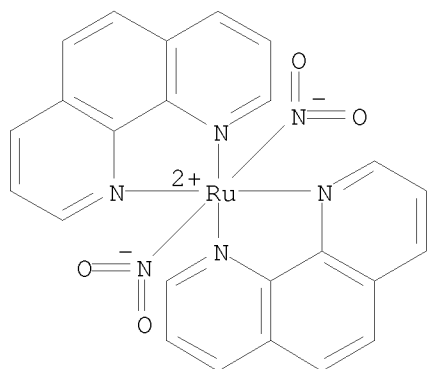
IT 31298-49-4P

RL: PREP (Preparation)

(preparation of, non-photolytic cleavage of DNA with)

RN 31298-49-4 CAPLUS

CN Ruthenium, bis(nitrito-N)(1,10-phenanthroline-N1,N10)-, (OC-6-22)- (9CI)  
(CA INDEX NAME)



OS.CITING REF COUNT: 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD (7 CITINGS)  
 REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 76 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1993:224249 CAPLUS

DOCUMENT NUMBER: 118:224249

ORIGINAL REFERENCE NO.: 118:38472h,38473a

TITLE: Electronic coupling in cyano-bridged ruthenium polypyridine complexes and role of electronic effects on cyanide stretching frequencies

AUTHOR(S): Bignozzi, Carlo Alberto; Argazzi, Roberto; Schoonover, Jon R.; Gordon, Keith C.; Dyer, R. Brian; Scandola, Franco

CORPORATE SOURCE: Dip. Chim., Univ. Ferrara, Ferrara, 44100, Italy

SOURCE: Inorganic Chemistry (1992), 31(25), 5260-7

CODEN: INOCAJ; ISSN: 0020-1669

DOCUMENT TYPE: Journal

LANGUAGE: English

AB [Bu4N]4[Ru(dcb)2(CN)2] (H2dcb = 2,2'-bipyridine-4,4'-dicarboxylic acid) and [Re(phen)(CO)3CNRu(NH3)5](PF6)3 (phen = phenanthroline) were prepared. The spectroscopic and electrochem. properties of a series of polynuclear complexes containing CN--bridged Ru polypyridine units are consistent with a valence-localized model. In all the Ru(II) forms, the lowest metal-to-ligand charge-transfer (MLCT) states are localized on N-bonded moieties. The photophys. properties at 298 and 77 K indicate that efficient intercomponent energy-transfer processes from C-bonded to N-bonded chromophoric units take place. The mixed-valence forms of these complexes show low-energy absorption bands which are assigned to metal-to-metal charge-transfer transitions involving C-bonded Ru(II) and N-bonded Ru(III) centers. The resonance Raman spectrum of [NCRuII(bpy)2CNRuIII(bpy)2CN]2+ I; (bpy = 2,2'-bipyridine) under near-resonance conditions with the Ru(II)-Ru(III) charge-transfer band shows enhancement of the bridging CN- stretching as expected for this type of electronic transition. In the IR spectra the number of CN- stretching bands support the valence-localized model. For the representative I, 3 CN stretches (1 bridging, 2 terminal) are observed. Time-resolved IR measurements for the MLCT excited state of [NCRuII(bpy)2CNRuII(bpy)2CN]+ are reported. The excited-state IR spectrum shows features similar to those of the chemical prepared mixed-valence dimer, I, strongly suggesting that valence delocalization is not significant in the excited state. The electronic factors affecting the frequency of the bridging CN- are analyzed by examining the behavior of the mixed-valence ions.

10/585,013

[MNCM'(bpy)2CNM]6+/4+ and [NCM'(bpy)2CNM]3+/2+ (M = [Ru(NH3)5]2+/3+; M' = RuII, OsII, ReI).

IT 123099-67-2P

RL: PRP (Properties); PREP (Preparation)  
(formation and visible spectrum of)

RN 123099-67-2 CAPLUS

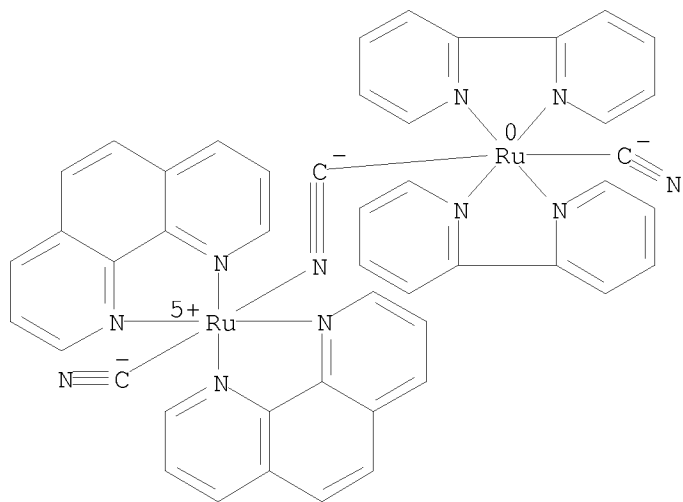
CN Ruthenium(2+), bis(2,2'-bipyridine-N,N') [ $\mu$ -(cyano-C:N)]bis(cyano-C)bis(1,10-phenanthroline-N1,N10)di-, stereoisomer, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 123099-66-1

CMF C47 H32 N11 Ru2

CCI CCS

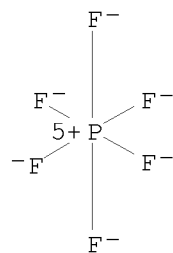


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



IT 123099-59-2

RL: RCT (Reactant); RACT (Reactant or reagent)  
(visible spectrum and oxidation of)

RN 123099-59-2 CAPLUS

10/585,013

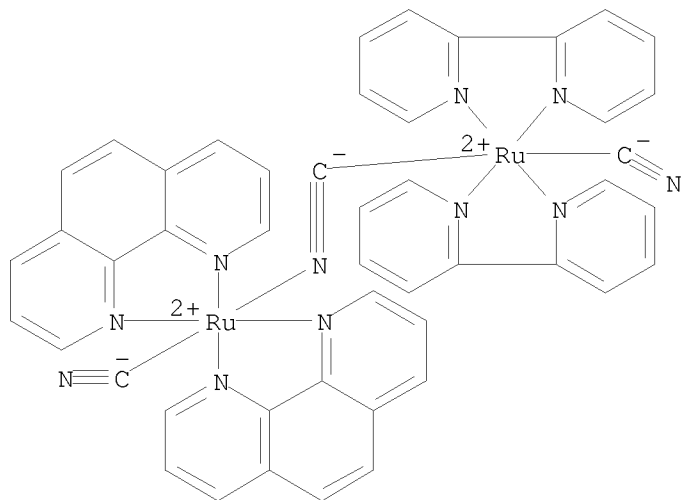
CN Ruthenium(1+), bis(2,2'-bipyridine-N,N') [ $\mu$ -(cyano-C:N)]bis(cyano-C)bis(1,10-phenanthroline-N1,N10)di-, stereoisomer, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 123099-58-1

CMF C47 H32 N11 Ru2

CCI CCS

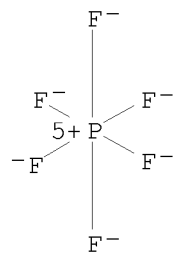


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 79 THERE ARE 79 CAPLUS RECORDS THAT CITE THIS RECORD (79 CITINGS)

L6 ANSWER 77 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1993:203936 CAPLUS

DOCUMENT NUMBER: 118:203936

ORIGINAL REFERENCE NO.: 118:34809a,34812a

TITLE: Sulfato complexes of bi- and tri-valent ruthenium

AUTHOR(S): Sarker, S. C.; Poddar, R. K.

CORPORATE SOURCE: Dep. Chem., North-Eastern Hill Univ., Shillong, 793

10/585,013

SOURCE: 003, India  
Indian Journal of Chemistry, Section A: Inorganic,  
Bio-inorganic, Physical, Theoretical & Analytical  
Chemistry (1992), 31A(12), 966-9  
CODEN: ICACEC; ISSN: 0376-4710

DOCUMENT TYPE: Journal  
LANGUAGE: English

AB M[Ru(SO<sub>4</sub>)<sub>2</sub>(H<sub>2</sub>O)<sub>2</sub>] (M = K, Rb, Cs, NMe<sub>4</sub>), [RuL(H<sub>2</sub>O)<sub>2</sub>(SO<sub>4</sub>)] (L =  
2,2-bipyridine, 1,10-phenanthroline, o-aminopyridine), [Ru(Pda)<sub>2</sub>(SO<sub>4</sub>)]  
(Pda = o-phenylenediamine), [Ru(tu)<sub>2</sub>(H<sub>2</sub>O)<sub>2</sub>(SO<sub>4</sub>)] (tu = thiourea),  
[Ru(CO)(PPh<sub>3</sub>)<sub>2</sub>(SO<sub>4</sub>)], and [Ru(Py)<sub>4</sub>(SO<sub>4</sub>)] were synthesized from  
HRu(SO<sub>4</sub>)<sub>2</sub>(H<sub>2</sub>O)<sub>6</sub>. The compds. were characterized using phys., anal.,  
spectral, and magnetic susceptibility data.

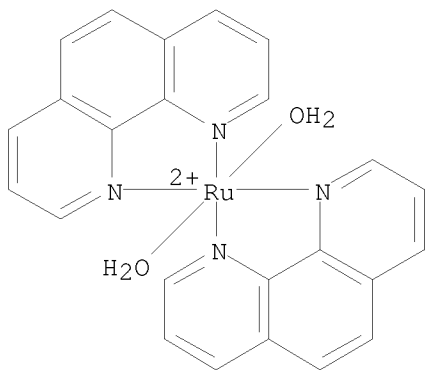
IT 146987-36-2P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 146987-36-2 CAPLUS

CN Ruthenium(2+), diaquabis(1,10-phenanthroline-N1,N10)-, sulfate (1:1) (9CI)  
(CA INDEX NAME)

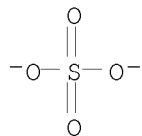
CM 1

CRN 146987-35-1  
CMF C24 H20 N4 O2 Ru  
CCI CCS



CM 2

CRN 14808-79-8  
CMF O4 S



L6 ANSWER 78 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 1993:159825 CAPLUS  
DOCUMENT NUMBER: 118:159825

ORIGINAL REFERENCE NO.: 118:27171a,27174a  
 TITLE: Synthesis and properties of new DNA cleavage agents based on oxoruthenium(IV)  
 AUTHOR(S): Gupta, Nishi; Grover, Neena; Neyhart, Gregory A.; Singh, Phirtu; Thorp, H. Holden  
 CORPORATE SOURCE: Dep. Chem., North Carolina State Univ., Raleigh, NC, 27695, USA  
 SOURCE: Inorganic Chemistry (1993), 32(3), 310-16  
 CODEN: INOCAJ; ISSN: 0020-1669  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB New aquaruthenium(II) reagents that are capable of being oxidized to hydroxoruthenium(III) and oxoruthenium(IV) were prepared. Complexes based on Ru(tpy)(L)OH<sub>2</sub><sup>2+</sup> (L =  $\eta^2$ -tpt, phen, dppz, tmen; tpy = 2,2':6',2''-terpyridine, tpt = 2,4,6-tripyridyltriazine, phen = 1,10-phenanthroline, dppz = dipyridophenazine, and tmen = N,N',N''-tetramethylethylenediamine) were prepared and can all be reversibly oxidized to their Ru(IV) forms, which are component DNA cleavage agents, as is Ru(phen)<sub>2</sub>(py)O<sub>2</sub><sup>+</sup>. In addition to Ru(tpy)( $\eta^2$ -tpt)OH<sub>2</sub><sup>2+</sup>, the  $\eta^3$  complex of tpt, Ru(tpy)( $\eta^3$ -tpt)<sub>2</sub><sup>+</sup>, can also be prepared under similar conditions. In the presence of Ag<sup>+</sup> ion, a novel Ru<sub>2</sub>Ag complex can be isolated and was crystallog. characterized. [Ru(tpy)( $\eta^3$ -tpt)](ClO<sub>4</sub>)<sub>2</sub>·0.5AgClO<sub>4</sub>·0.5H<sub>2</sub>O crystallizes as monoclinic, space group A2/a, a 14.723(5), b 26.061(6), c 22.148(6) Å,  $\beta$  106.33(3)°, Z = 4, R = 0.0807, R<sub>w</sub> = 0.1156. The Ru(tpy)OH<sub>2</sub><sup>2+</sup> unit can also be attached to the tmen-AO<sup>+</sup> ligand, where a N,N',N''-trimethylethylenediamine function is appended via a (CH<sub>2</sub>)<sub>6</sub> linker to the acridine orange (HAO) intercalator. The Ru(tpy)(tmen-AO)OH<sub>2</sub><sup>3+</sup> complex is an effective cleavage agent, but only when oxidation is performed on the complex prebound to DNA. In homogeneous solution, electrochem. reversible access of only the Ru(III)OH form is possible, probably because of oxidation of the polymethylene linker.

IT 31450-89-2  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, in preparation of aqua pyridine phenanthroline complex)

RN 31450-89-2 CAPLUS

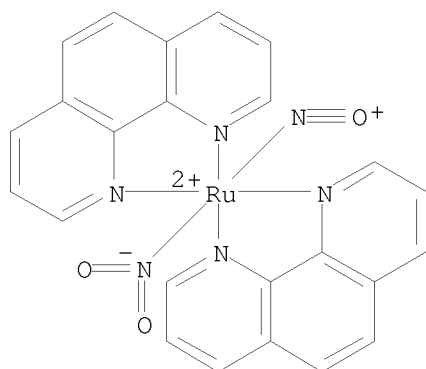
CN Ruthenium(2+), nitronitrosylbis(1,10-phenanthroline-N1,N10)-, (OC-6-33)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 47736-19-6

CMF C24 H16 N6 O3 Ru

CCI CCS



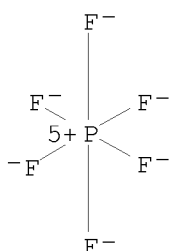
10/585,013

CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 81 THERE ARE 81 CAPLUS RECORDS THAT CITE THIS  
RECORD (82 CITINGS)

L6 ANSWER 79 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1993:157200 CAPLUS

DOCUMENT NUMBER: 118:157200

ORIGINAL REFERENCE NO.: 118:26795a,26798a

TITLE: Fast atom bombardment mass spectrometry of multiply  
charged polynuclear rhenium(I)-ruthenium(II) complexes

AUTHOR(S): Argazzi, R.; Bignozzi, C. A.; Bortolini, O.; Traldi,  
P.

CORPORATE SOURCE: Dip. Chim., Univ. Ferrara, Ferrara, 44100, Italy

SOURCE: Inorganic Chemistry (1993), 32(7), 1222-5

CODEN: INOCAJ; ISSN: 0020-1669

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The fast atom bombardment (FAB) mass spectrometric behavior of some in  
volatile polynuclear rhenium(I)-ruthenium-(II) complexes of general  
formula  $[\text{Re}(\text{CO})_3(\text{phen})(\text{CN})-\text{[Ru}(\text{bpy})_2(\text{CN})]_n\text{-Ru}(\text{bpy})_2(\text{CN})(n+1)+}$  ( $n = 0-2$ ,  
 $\text{bpy} = 2,2'$ -bipyridine,  $\text{phen} = 1,10$ -phenanthroline) is presented. Singly,  
doubly, and, for  $n = 2$ , also triply charged ions were detected, and the  
fragmentation patterns of these ionic species were determined by studying  
unimol. dissociation reactions. The decomposition pathways involve losses of

CO and bpy neutral ligands, oxidative addition of coordinated bpy with expulsion  
of HX ( $X = \text{CN-}$ ,  $\text{PF-6}$ ), and cleavage of the CN-Ru bond.

IT 146755-28-4 146755-30-8

RL: PEP (Physical, engineering or chemical process); PRP (Properties);  
PROC (Process)

(fast atom bombardment mass spectra of, energy transfer in relation to)

RN 146755-28-4 CAPLUS

CN Rhenium(1+), tricarbonyl[ $\mu$ -(cyano-C:N)][(cyano-C)bis(1,10-  
phenanthroline-N1,N10)ruthenium](1,10-phenanthroline-N1,N10)-,  
hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

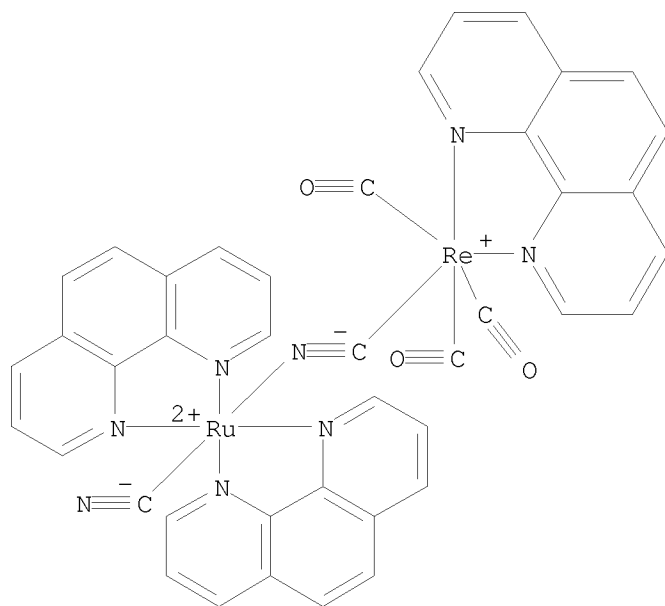
CM 1

CRN 144018-19-9

CMF C41 H24 N8 O3 Re Ru

CCI CCS

10/585,013

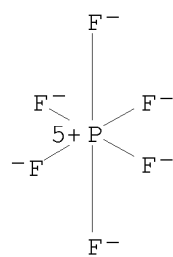


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



RN 146755-30-8 CAPLUS

CN Rhenium(2+), [bis(2,2'-bipyridine-N,N') [μ-(cyano-C:N)] (cyano-C)bis(1,10-phenanthroline-N1,N10)diruthenium]tricarbonyl [μ-(cyano-C:N)] (1,10-phenanthroline-N1,N10)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

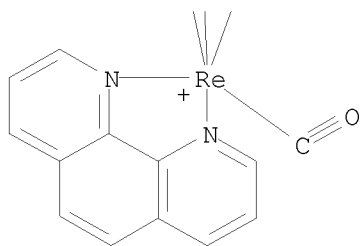
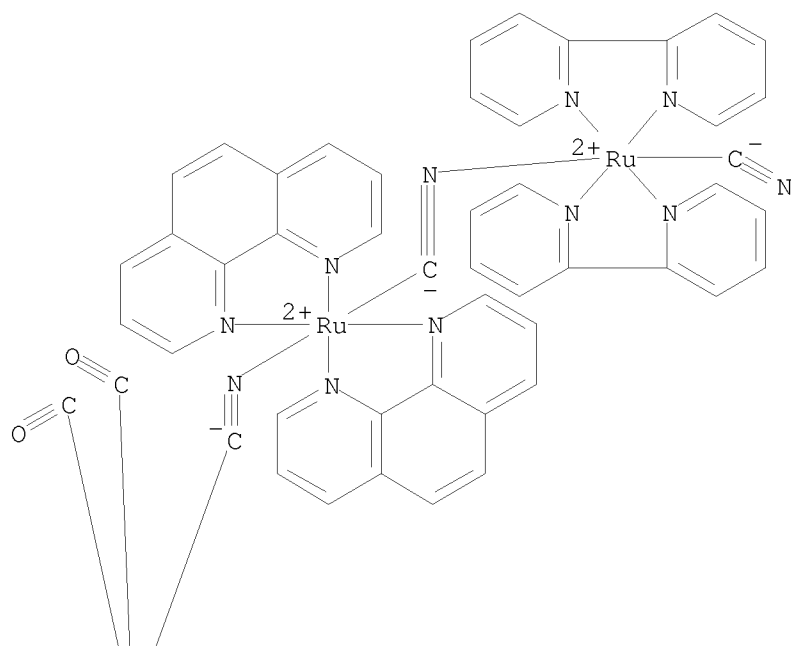
CM 1

CRN 144018-20-2

CMF C62 H40 N13 O3 Re Ru2

CCI CCS



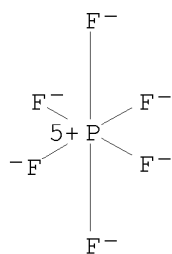


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 10 THERE ARE 10 CAPLUS RECORDS THAT CITE THIS  
RECORD (10 CITINGS)

L6 ANSWER 80 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1992:629396 CAPLUS

DOCUMENT NUMBER: 117:229396

ORIGINAL REFERENCE NO.: 117:39565a,39568a

TITLE: Novel dipyridophenazine complexes of ruthenium(II):  
exploring luminescent reporters of DNA

AUTHOR(S): Hartshorn, Richard M.; Barton, Jacqueline K.

CORPORATE SOURCE: Div. Chem. Chem. Eng., California Inst. Technol.,  
Pasadena, CA, 91125, USA

SOURCE: Journal of the American Chemical Society (1992),  
114(15), 5919-25

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

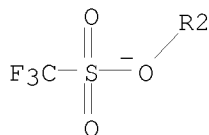
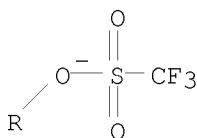
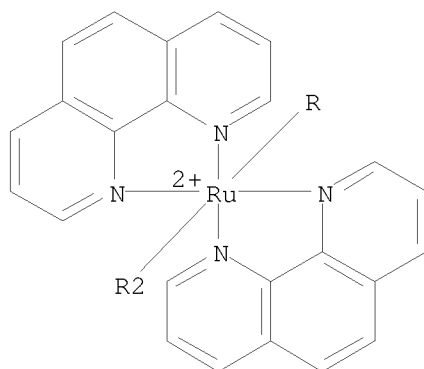
AB A series of ruthenium(II) complexes have been prepared which contain two phenanthroline ligands and a third bidentate ligand which is one of a set of derivs. of the parent dipyrido[3,2-a:2',3'-c]phenazine (DPPZ) ligand. The spectroscopic properties of these complexes in the presence and absence of DNA have also been characterized. The derivs. have been prepared by condensation of different diaminobenzenes or diaminopyridines with the synthetic intermediate bis(1,10-phenanthroline)(1,10-phenanthroline-5,6-dione)ruthenium(II), [Ru(phen)2DPPZ]2+, like [Ru(bpy)2DPPZ]2+ (phen = 1,10-phenanthroline, bpy = 2,2'-bipyridine, DPPZ = dipyrido[3,2-a:2',3'-c]phenazine), acts as a mol. light switch for the presence of DNA, displaying no detectable photoluminescence in aqueous solution but luminescing brightly on binding to DNA. None of the DPPZ derivs. prepared show comparable light switch enhancements, since some luminescence may be detected in aqueous solution in the absence of DNA. For some complexes, however, luminescence enhancements of a factor of 20-300 are observed on binding to DNA. For these and the parent DPPZ complexes, the large enhancements observed are attributed to a sensitivity of the ruthenium-DPPZ luminescent charge-transfer transition to quenching by water, although these complexes show little or no luminescence in water, appreciable luminescence is found in acetonitrile. Other derivs. show little solvent sensitivity in luminescence, and these, like Ru(phen)32+, display moderate enhancements (20-70%) on binding to DNA. [Ru(phen)2DPPZ]2+ and its derivs. all show at least biexponential decays in emission. Two binding modes have been proposed to account for these emission characteristics: a perpendicular mode where the DPPZ ligand intercalates from the major groove such that the metal-phenazine axis lies along the DNA dyad axis, and another, side-on mode where the metal-phenazine axis lies along the long axis of the base pairs.

IT 142211-60-7

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with phendione)

RN 142211-60-7 CAPLUS

CN Ruthenium, bis(1,10-phenanthroline-N1,N10)bis(trifluoromethanesulfonato-O)-  
, (OC-6-22)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 290 THERE ARE 290 CAPLUS RECORDS THAT CITE THIS RECORD (297 CITINGS)

L6 ANSWER 81 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1992:603925 CAPLUS

DOCUMENT NUMBER: 117:203925

ORIGINAL REFERENCE NO.: 117:34965a, 34968a

TITLE: Long-range energy transfer in oligomeric metal complex assemblies

AUTHOR(S): Bignozzi, Carlo Alberto; Argazzi, Roberto; Garcia, Christian G.; Scandola, Franco; Schoonover, Jon R.; Meyer, Thomas J.

CORPORATE SOURCE: Dip. Chim., Univ. Ferrara, Ferrara, 44100, Italy

SOURCE: Journal of the American Chemical Society (1992), 114(22), 8727-9

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

AB General methods for the preparation of the oligomers  $[(\text{phen})(\text{CO})_3\text{Re}(\text{CN})[\text{Ru}(\text{bpy})_2(\text{CN})]_n\text{Ru}(\text{bpy})_2(\text{CN})]^{(n+1)+}$  (phen = 1,10-phenanthroline, bpy = 2,2'-bipyridine,  $n = 0-3$ ) are reported. The electrochem. and photophys. properties of the oligomers are consistent with a lowest metal-to-ligand charge-transfer excited state localized on the terminal RuII unit. Excitation of the  $\text{ReI} \rightarrow \text{phen}$  or internal

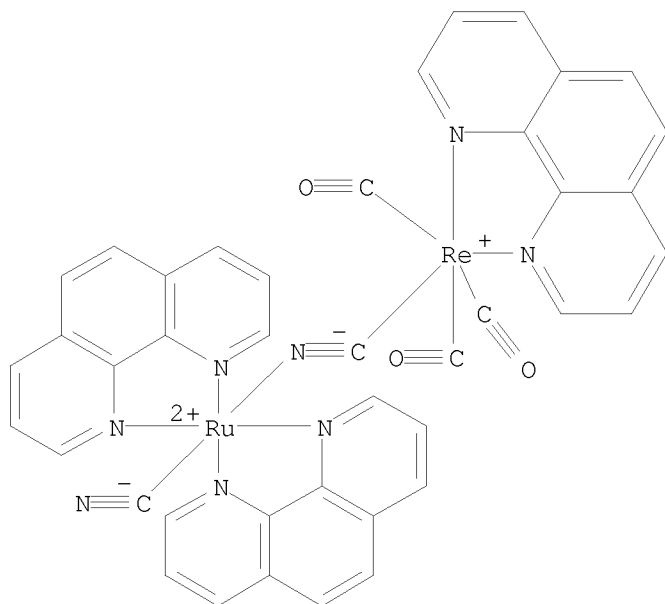
RuII  $\rightarrow$  bpy chromophores in MeCN is followed by rapid ( $\tau < 7$  ns), efficient interunit energy transfer to the terminal Ru chromophore, as shown by solvent-dependent emission studies. Direct evidence for long-range energy transfer in  $[(\text{phen})(\text{CO})_3\text{Re}(\text{NC})\text{Ru}(\text{phen})_2(\text{CN})\text{Ru}(\text{bpy})_2(\text{CN})]^{2+}$  was obtained by time-resolved resonance Raman spectroscopy and the appearance of only bpy $\bullet^-$  Raman bands in the excited-state spectrum following  $\text{ReI} \rightarrow$  phen excitation.

IT 144018-19-9 144018-20-2

RL: PRP (Properties)  
(Raman spectrum of)

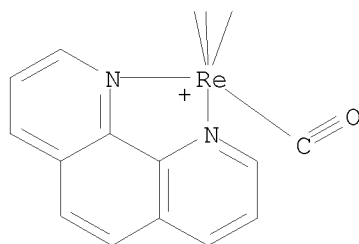
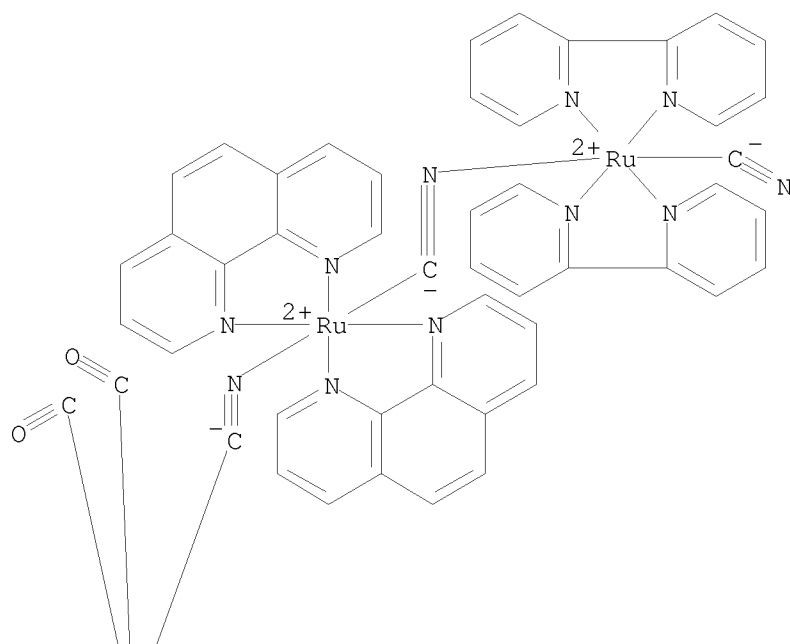
RN 144018-19-9 CAPLUS

CN Rhenium(1+), tricarbonyl [ $\mu$ -(cyano-C:N)] [(cyano-C)bis(1,10-phenanthroline-N1,N10)ruthenium] (1,10-phenanthroline-N1,N10)- (9CI) (CA INDEX NAME)



RN 144018-20-2 CAPLUS

CN Rhenium(2+), [bis(2,2'-bipyridine-N,N') [ $\mu$ -(cyano-C:N)] (cyano-C)bis(1,10-phenanthroline-N1,N10)diruthenium]tricarbonyl [ $\mu$ -(cyano-C:N)] (1,10-phenanthroline-N1,N10)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 27 THERE ARE 27 CAPLUS RECORDS THAT CITE THIS RECORD (27 CITINGS)

L6 ANSWER 82 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1992:189869 CAPLUS

DOCUMENT NUMBER: 116:189869

ORIGINAL REFERENCE NO.: 116:32035a,32038a

TITLE: Stereoselective covalent binding of aquaruthenium(II) complexes to DNA

AUTHOR(S): Grover, Neena; Gupta, Nishi; Thorp, H. Holden

CORPORATE SOURCE: Dep. Chem., North Carolina State Univ., Raleigh, NC, 27695-8204, USA

SOURCE: Journal of the American Chemical Society (1992), 114(9), 3390-3

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

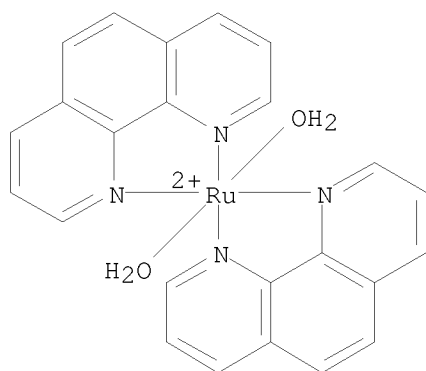
AB A group of seven mono- and diaquapolypyridyl complexes of Ru(II) have been

shown to bind covalently to DNA by ultrafiltration, extensive dialysis, and ethanol precipitation. Incubation of the metal complex with calf thymus DNA in 50 mM phosphate buffer produces solns. of DNA exhibiting visible absorptions clearly due to the metal complex. These absorptions remain unchanged upon prolonged ultrafiltration or dialysis, demonstrating covalent binding of the metal complex to the DNA. Determination of the amount of bound metal complex either from the spectrum of the labeled DNA or from quantitation of the free metal complex in the filtrate obtained following ultrafiltration give  $rb = [Ru]b/[DNA\text{-nucleotide phosphate}] = 0.01\text{-}0.02$  for all of the complexes. CD spectroscopy of the filtrate obtained following the reaction of DNA with racemic  $Ru(\text{phen})_2(\text{py})\text{OH}_2^{2+}$  shows an enrichment of the solution in the  $\Lambda$  isomer by comparison with the known CD spectrum of the complex. Careful quantitation of the degree of enrichment in the filtrate shows that 90% of the complexes bound to DNA are the  $\Lambda$  isomer, giving an enantiomeric excess for binding of the  $\Lambda$  isomer of 80%. Other chiral complexes give lower selectivities, although the  $\Lambda$  isomer is preferred in all of the tested cases.

IT 47668-18-8  
 RL: BIOL (Biological study)  
 (DNA covalent binding by, chiral selectivity in)

RN 47668-18-8 CAPLUS

CN Ruthenium(2+), diaquabis(1,10-phenanthroline- $\kappa N1, \kappa N10$ )-,  
 (OC-6-22)- (CA INDEX NAME)



OS.CITING REF COUNT: 34 THERE ARE 34 CAPLUS RECORDS THAT CITE THIS RECORD (34 CITINGS)

L6 ANSWER 83 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1992:71304 CAPLUS

DOCUMENT NUMBER: 116:71304

ORIGINAL REFERENCE NO.: 116:12012h,12013a

TITLE: Fast-atom bombardment mass spectrometry of oligomeric dicyanobis(polypyridine)ruthenium(II) complexes

AUTHOR(S): Bignozzi, C. A.; Bortolini, O.; Traldi, P.

CORPORATE SOURCE: Dip. Chim., Ferrara, 44100, Italy

SOURCE: Rapid Communications in Mass Spectrometry (1991), 5(12), 600-3  
 CODEN: RCMSEF; ISSN: 0951-4198

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The pos.-ion fast-atom bombardment (FAB) mass spectra of the binuclear  $[CN-Ru(L_2)-CN-Ru(L'_2)-CN]^+$  and trinuclear

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[CN-Ru(L2)-CN-Ru(L2)-CN-Ru(L2)-CN]<sup>2+</sup> complexes (L = 2,2'-bipyridine; L' = 2,2'-bipyridine, 1,10-phenanthroline) were investigated and compared with those of the mononuclear NC-Ru(L2')-CN species. The FAB fragmentation patterns of the mononuclear species are interpreted by a combination of simple losses of neutral polypyridine ligands and HCN mols. and provide useful information for the understanding of the gas-phase decompns. of the oligomeric species.

IT 123099-59-2

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)

(mass spectra of, pos. ion fast-atom bombardment)

RN 123099-59-2 CAPLUS

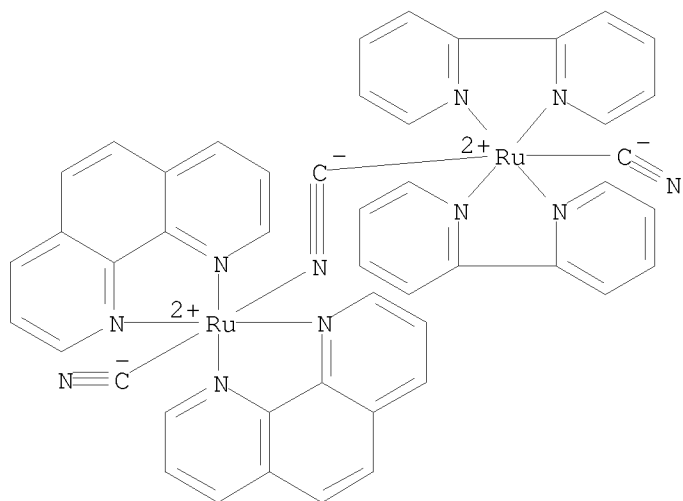
CN Ruthenium(1+), bis(2,2'-bipyridine-N,N') [μ-(cyano-C:N)]bis(cyano-C)bis(1,10-phenanthroline-N1,N10)di-, stereoisomer, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 123099-58-1

CMF C47 H32 N11 Ru2

CCI CCS

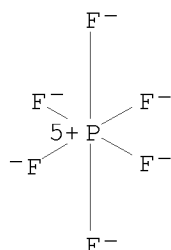


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD  
(3 CITINGS)

L6 ANSWER 84 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1991:568837 CAPLUS

DOCUMENT NUMBER: 115:168837

ORIGINAL REFERENCE NO.: 115:28695a, 28698a

TITLE: Electrochemistry of cis-diaquoruthenium(II) complexes with 2,2'-bipyridine and related ligands at edge plane pyrolytic graphite electrodes. Characterization of reversible ruthenium(VI/V), ruthenium(V/IV), ruthenium(IV/III) and ruthenium(III/II) couples and catalytic oxidation by ruthenium(VI)

AUTHOR(S): Che, Chi Ming; Wong, Kwok Yin; Lee, Wai On; Anson, Fred C.

CORPORATE SOURCE: Dep. Chem., Univ. Hong Kong, Hong Kong, Hong Kong  
SOURCE: Journal of Electroanalytical Chemistry and Interfacial Electrochemistry (1991), 309(1-2), 303-11  
CODEN: JEIEBC; ISSN: 0022-0728

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The redox potentials were measured for several cis-diaquoruthenium complexes with bipyridine and related ligands. The effect of solution pH on the redox potentials is reported. The catalytic oxidation of benzyl alc., iso-PrOH, THF and Cl<sup>-</sup> was studied in the presence of Ru complexes. The adsorption of the complexes on the pyrolytic graphite is also discussed.

IT 47668-18-8 136313-59-2 136313-60-5  
136313-61-6 136313-62-7 136313-63-8  
136313-64-9 136313-65-0 136313-66-1  
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136313-70-7 136313-71-8 136339-68-9

RL: PRP (Properties)

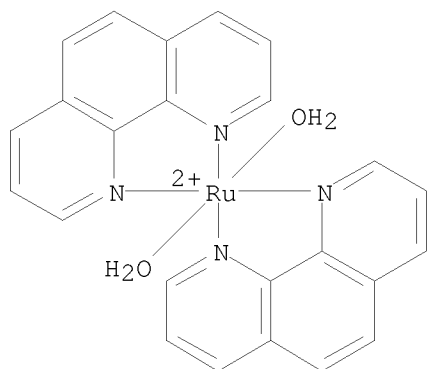
(elec. potential of redox couple containing, electrocatalytic properties in relation to)

RN 47668-18-8 CAPLUS

CN Ruthenium(2+), diaquabis(1,10-phenanthroline-κN1,κN10)-,  
(OC-6-22)- (CA INDEX NAME)

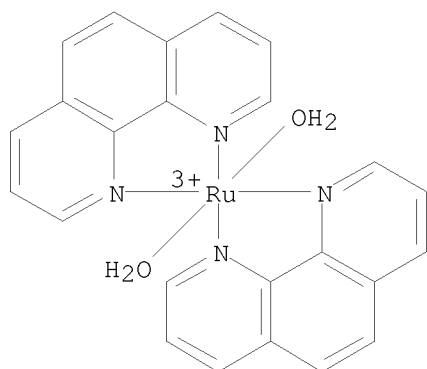


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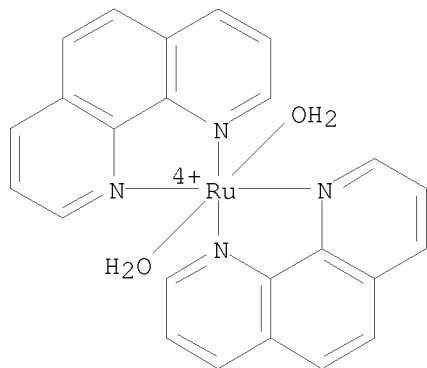
RN 136313-59-2 CAPLUS

CN Ruthenium(3+), diaquabis(1,10-phenanthroline-N1,N10)-, (OC-6-22)- (9CI)  
(CA INDEX NAME)



RN 136313-60-5 CAPLUS

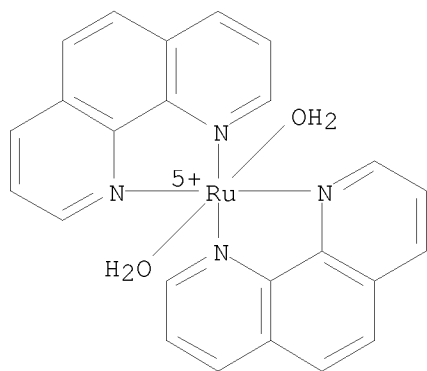
CN Ruthenium(4+), diaquabis(1,10-phenanthroline-N1,N10)-, (OC-6-22)- (9CI)  
(CA INDEX NAME)



RN 136313-61-6 CAPLUS

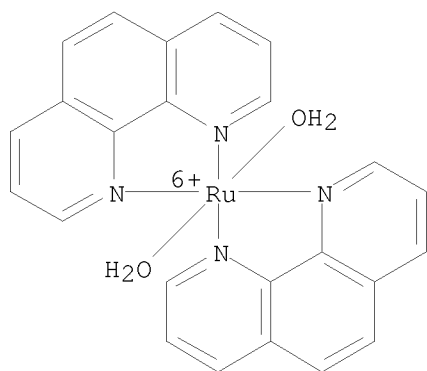
CN Ruthenium(5+), diaquabis(1,10-phenanthroline-N1,N10)-, (OC-6-22)- (9CI)  
(CA INDEX NAME)

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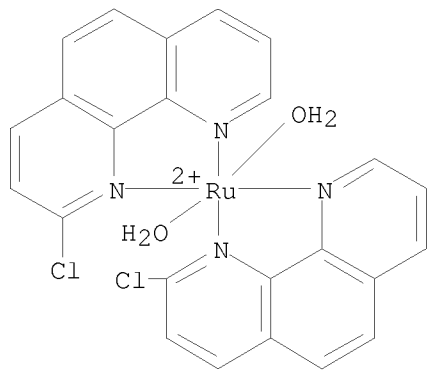
RN 136313-62-7 CAPLUS

CN Ruthenium(6+), diaquabis(1,10-phenanthroline-N1,N10)-, (OC-6-22)- (9CI)  
(CA INDEX NAME)



RN 136313-63-8 CAPLUS

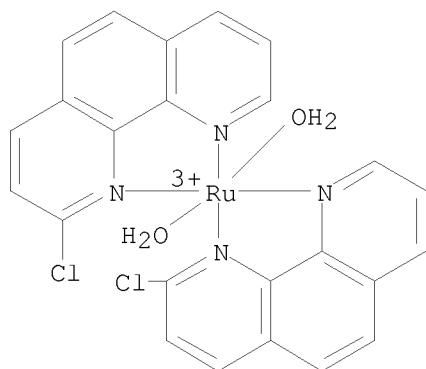
CN Ruthenium(2+), diaquabis(2-chloro-1,10-phenanthroline-N1,N10)- (9CI) (CA  
INDEX NAME)



RN 136313-64-9 CAPLUS

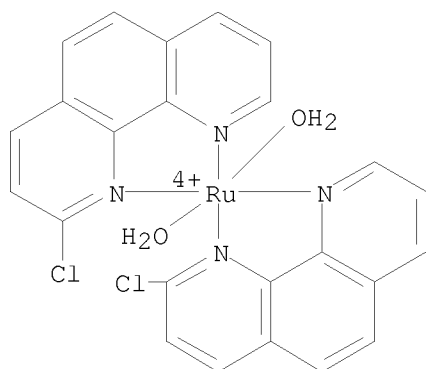
CN Ruthenium(3+), diaquabis(2-chloro-1,10-phenanthroline-N1,N10)- (9CI) (CA  
INDEX NAME)

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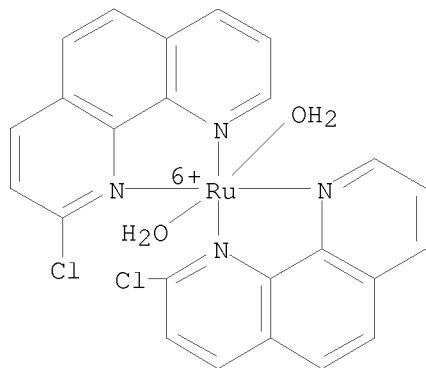
RN 136313-65-0 CAPLUS

CN Ruthenium(4+), diaquabis(2-chloro-1,10-phenanthroline-N1,N10)- (9CI) (CA INDEX NAME)



RN 136313-66-1 CAPLUS

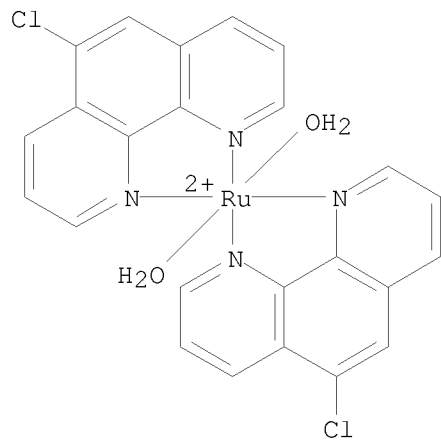
CN Ruthenium(6+), diaquabis(2-chloro-1,10-phenanthroline-N1,N10)- (9CI) (CA INDEX NAME)



RN 136313-67-2 CAPLUS

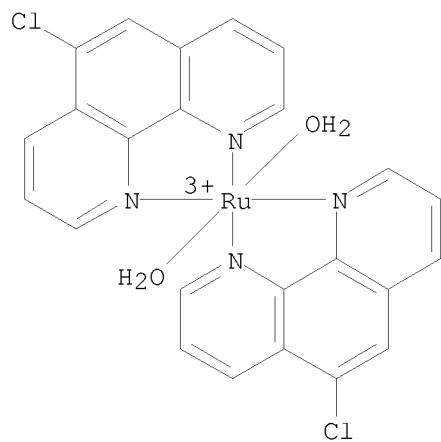
CN Ruthenium(2+), diaquabis(5-chloro-1,10-phenanthroline-N1,N10)- (9CI) (CA INDEX NAME)

10/585,013



RN 136313-68-3 CAPLUS

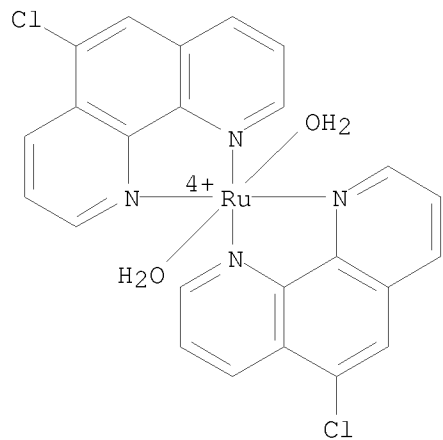
CN Ruthenium(3+), diaquabis(5-chloro-1,10-phenanthroline-N1,N10)- (9CI) (CA INDEX NAME)



RN 136313-69-4 CAPLUS

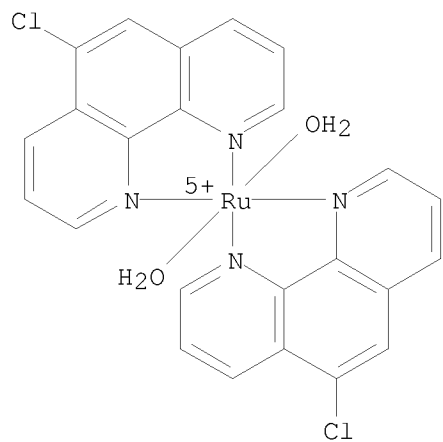
CN Ruthenium(4+), diaquabis(5-chloro-1,10-phenanthroline-N1,N10)- (9CI) (CA INDEX NAME)

10/585,013



RN 136313-70-7 CAPLUS

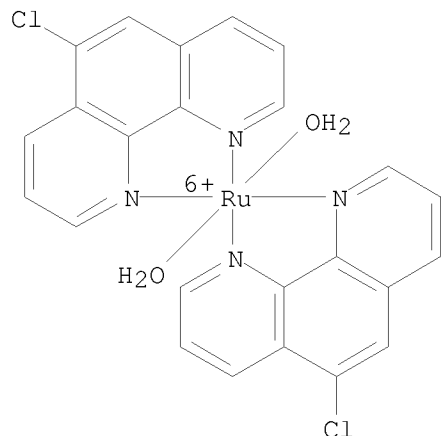
CN Ruthenium(5+), diaquabis(5-chloro-1,10-phenanthroline-N1,N10)- (9CI) (CA INDEX NAME)



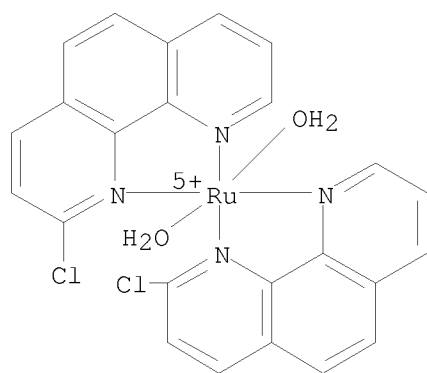
RN 136313-71-8 CAPLUS

CN Ruthenium(6+), diaquabis(5-chloro-1,10-phenanthroline-N1,N10)- (9CI) (CA INDEX NAME)

10/585,013



RN 136339-68-9 CAPLUS  
CN Ruthenium(5+), diaquabis(2-chloro-1,10-phenanthroline-N1,N10)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

L6 ANSWER 85 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1991:258466 CAPLUS

DOCUMENT NUMBER: 114:258466

ORIGINAL REFERENCE NO.: 114:43435a,43438a

TITLE: Synthesis, reactivities and electrochemistry of trans-dioxo-ruthenium(VI) complexes of  $\pi$ -aromatic diimines

AUTHOR(S): Che, Chi Ming; Leung, Wai Ho; Li, Chi Keung; Poon, Chung Kwong

CORPORATE SOURCE: Dep. Chem., Univ. Hong Kong, Hong Kong, Hong Kong  
SOURCE: Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry (1972-1999) (1991), (3), 379-84  
CODEN: JCDBI; ISSN: 0300-9246

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The synthesis and electrochem. of trans-[RuL<sub>2</sub>(OH)(H<sub>2</sub>O)][ClO<sub>4</sub>]<sub>2</sub> [L = 1,10-phenanthroline (phen) or 5,5'-dimethyl-2,2'-bipyridine (dmbipy)] are described. Oxidation of trans-[RuL<sub>2</sub>(OH)(H<sub>2</sub>O)]<sup>2+</sup> by Ce<sup>IV</sup> in H<sub>2</sub>O gave trans-[RuVIL2O2]<sup>2+</sup> which were isolated as the yellow salts.

10/585,013

trans-[RuVI(dmbipy)2O2][ClO4]2 is a powerful oxidant with  $E^\circ(\text{RuVI}-\text{RuIV}) = 1.0 \text{ V vs. SCE at pH 1.0}$ . In MeCN or Me, CO, it oxidizes alcs. to ketones/aldehydes, THF to  $\gamma$ -butyrolactone, alkenes to epoxides, and saturated or aromatic hydrocarbons to alcs./ketones.

Oxidation of

saturated alkanes occurs preferentially at the tertiary C-H bond. In the presence of  $\text{CCl}_4$ , cyclohexane is oxidized to cyclohexyl chloride instead of cyclohexanone. The mechanisms of alc. and cyclohexane oxidation were investigated by kinetic expts. and by isotope labeling studies.

IT 108340-26-7

RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidation of, by ceric ion)

RN 108340-26-7 CAPLUS

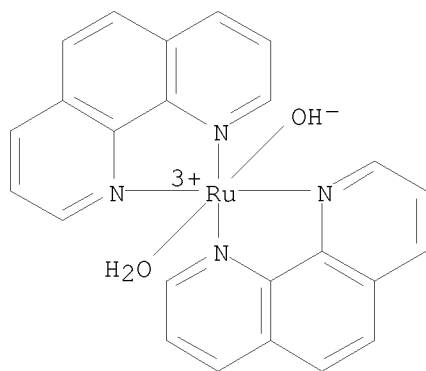
CN Ruthenium(2+), aquahydroxybis(1,10-phenanthroline-N1,N10)-, (OC-6-23)-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 108340-25-6

CMF C24 H19 N4 O2 Ru

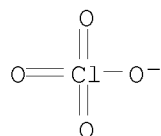
CCI CCS



CM 2

CRN 14797-73-0

CMF Cl O4



OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD  
(6 CITINGS)

L6 ANSWER 86 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1991:185713 CAPLUS

DOCUMENT NUMBER: 114:185713

ORIGINAL REFERENCE NO.: 114:31379a,31382a

TITLE: Bi- and trinuclear cyano-bridged ruthenium complexes

containing (L-L)2RuII and Cp(EPh3)2RuII moieties  
 [(L-L) = 2,2'-bipyridine, 1,10-phenanthroline; Cp =  $\eta^5$ -(C5H5)-; E = phosphorus, arsenic, antimony]

AUTHOR(S): Prasad, Rajendra; Mishra, Lallan; Agarwala, U. C.  
 CORPORATE SOURCE: Dep. Chem., Indian Inst. Technol., Kanpur, 208 016, India

SOURCE: Indian Journal of Chemistry, Section A: Inorganic, Bio-inorganic, Physical, Theoretical & Analytical Chemistry (1991), 30A(1), 45-52  
 CODEN: ICACEC; ISSN: 0376-4710

DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB The cyano and isonitrilo bridged di- and trinuclear ruthenium(II) complexes of the types, [NC(L-L)2RuCNRu(EPh3)2Cp]+ Y-, [Cl(L-L)2RuNCRu(EPh3)2Cp]Y and [(L-L)2Ru{NCRu(EPh3)2Cp}2]Y2 [where (L-L) = 2,2'-bipyridine, 1,10-phenanthroline; E = P, As, Sb; Cp =  $\eta^5$ -(C5H5)-; Y = (PF6)-, (BPh4)-] have been prepared. They have been characterized by elemental analyses, spectral (IR, 1H NMR and electronic) and redox data. The redox and the spectral properties of the [(L-L)2Ru(II)] moiety have been rationalized in terms of the competitive  $\pi$ -back bonding by the second Ru(II) ion centered at [RuCp(EPh3)2]+. The (L-L)2ClRu(II) group in isonitrile bridged complexes is more easily oxidized than that in the corresponding acetonitrile analog which accords with the spectral behavior of the complexes.

IT 133183-84-3P 133183-86-5P 133183-88-7P  
 133269-50-8P 133269-51-9P 133269-52-0P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

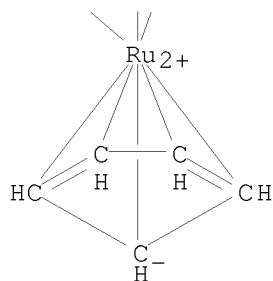
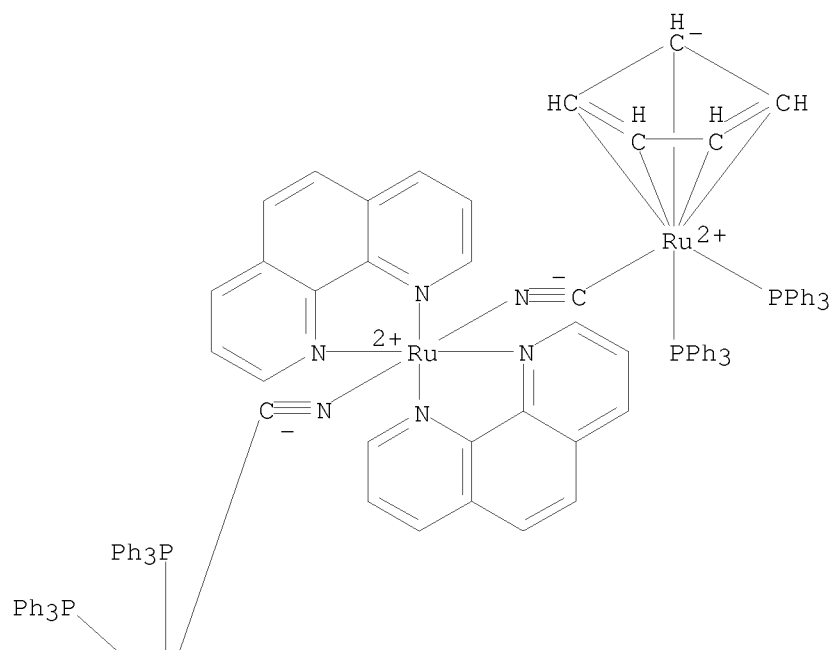
RN 133183-84-3 CAPLUS

CN Ruthenium(2+), bis[ $\mu$ -(cyano-C:N)]bis( $\eta^5$ -2,4-cyclopentadien-1-yl)bis(1,10-phenanthroline-N1,N10)tetrakis(triphenylphosphine)tri-, stereoisomer, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 133183-83-2  
 CMF C108 H86 N6 P4 Ru3  
 CCI CCS





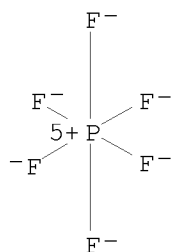
CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS

10/585,013

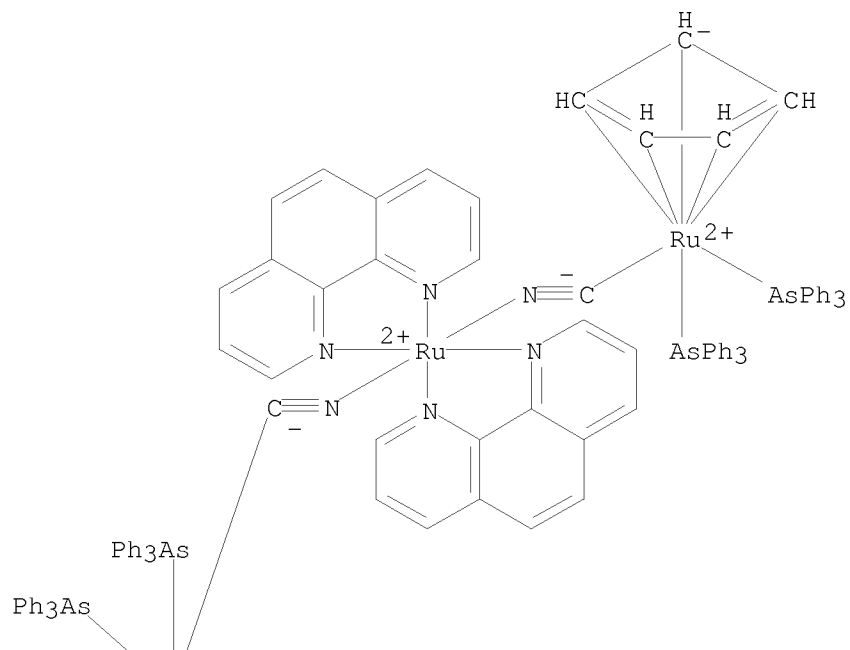


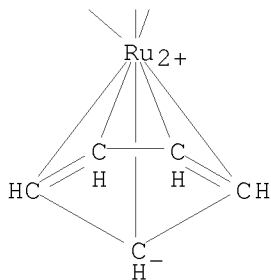
RN 133183-86-5 CAPLUS  
CN Ruthenium(2+), bis[μ-(cyano-C:N)]bis(η<sup>5</sup>-2,4-cyclopentadien-1-yl)bis(1,10-phenanthroline-N1,N10)tetrakis(triphenylarsine)tri-, stereoisomer, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 133183-85-4  
CMF C108 H86 As4 N6 Ru3  
CCI CCS

PAGE 1-A



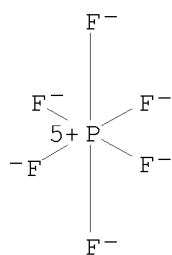


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



RN 133183-88-7 CAPLUS

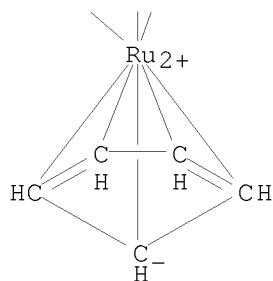
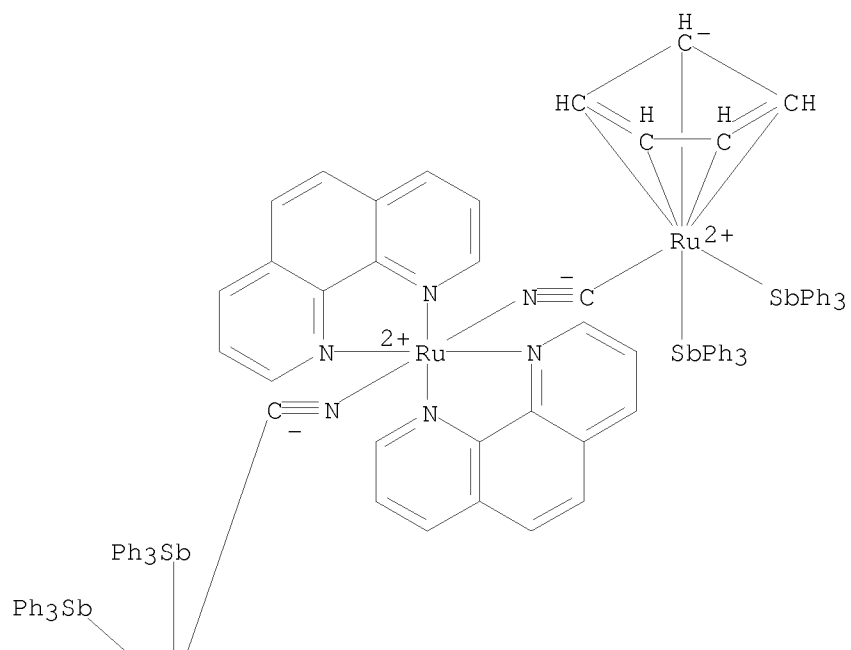
CN Ruthenium(2+), bis[μ-(cyano-C:N)]bis(η<sup>5</sup>-2,4-cyclopentadien-1-yl)bis(1,10-phenanthroline-N1,N10)tetrakis(triphenylstibine)tri-, stereoisomer, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 133183-87-6

CMF C108 H86 N6 Ru3 Sb4

CCI CCS



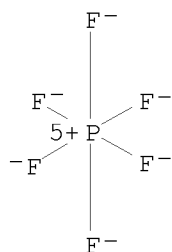
CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS

10/585,013

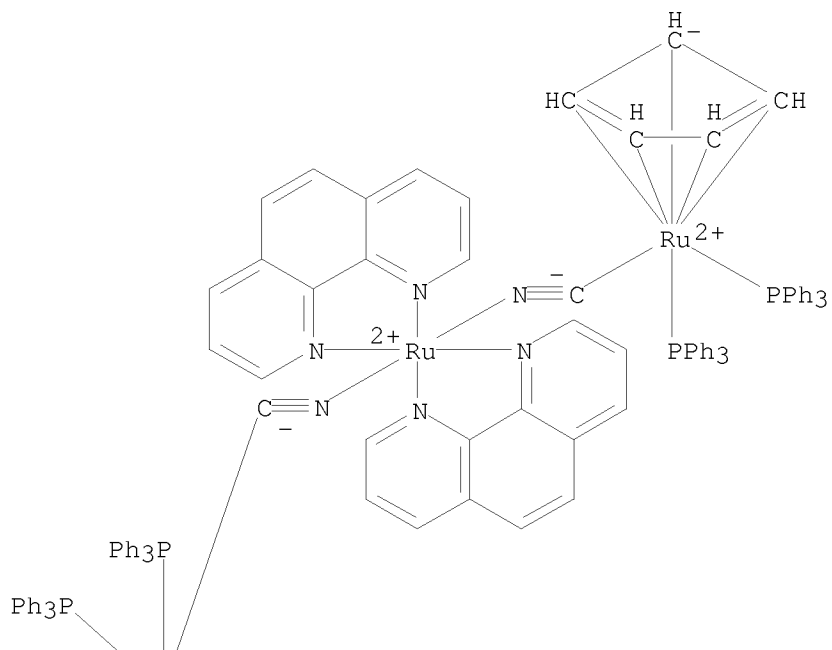


RN 133269-50-8 CAPLUS  
CN Ruthenium(2+), bis[μ-(cyano-C:N)]bis(η<sup>5</sup>-2,4-cyclopentadien-1-yl)bis(1,10-phenanthroline-N1,N10)tetrakis(triphenylphosphine)tri-, stereoisomer, bis[tetraphenylborate(1-)] (9CI) (CA INDEX NAME)

CM 1

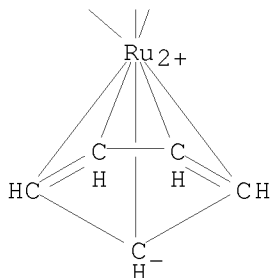
CRN 133183-83-2  
CMF C108 H86 N6 P4 Ru3  
CCI CCS

PAGE 1-A



10/585,013

PAGE 2-A

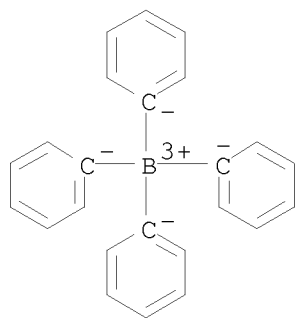


CM 2

CRN 4358-26-3

CMF C24 H20 B

CCI CCS



RN 133269-51-9 CAPLUS

CN Ruthenium(2+), bis[μ-(cyano-C:N)]bis(η<sup>5</sup>-2,4-cyclopentadien-1-yl)bis(1,10-phenanthroline-N1,N10)tetrakis(triphenylarsine)tri-, stereoisomer, bis[tetraphenylborate(1-)] (9CI) (CA INDEX NAME)

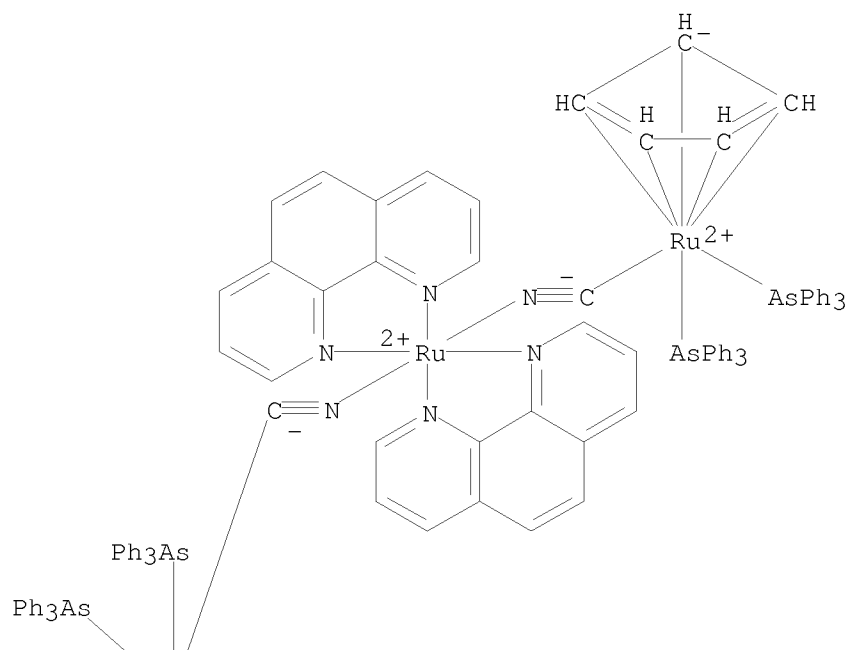
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CRN 133183-85-4

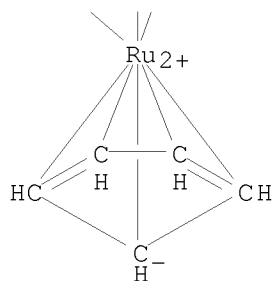
CMF C108 H86 As4 N6 Ru3

CCI CCS

PAGE 1-A



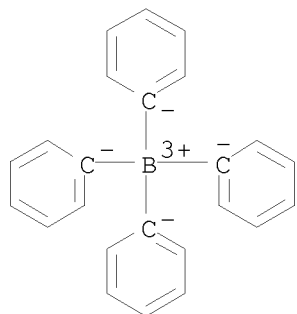
PAGE 2-A



CM 2

CRN 4358-26-3  
CMF C24 H20 B  
CCI CCS

10/585,013

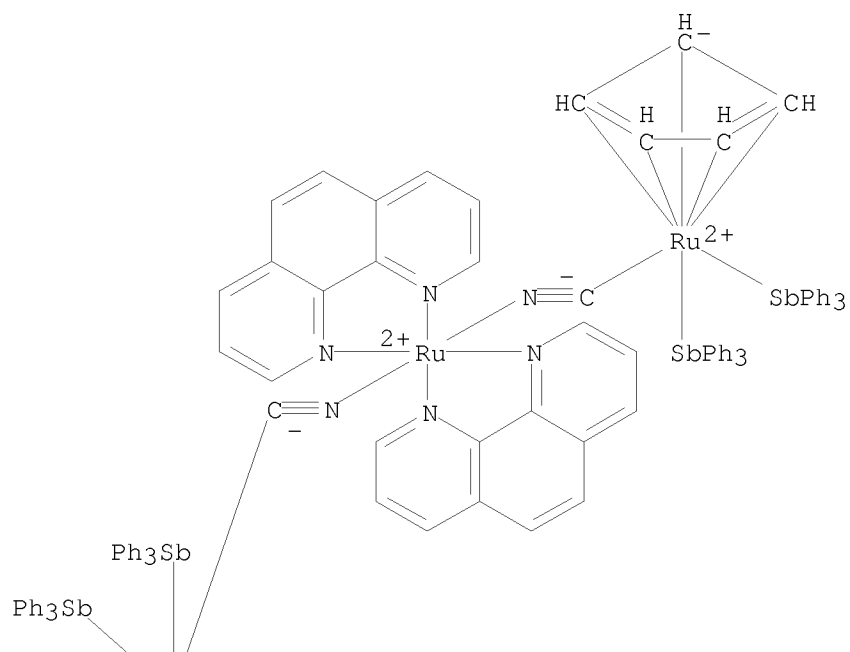


RN 133269-52-0 CAPLUS  
CN Ruthenium(2+), bis[μ-(cyano-C:N)]bis(η5-2,4-cyclopentadien-1-yl)bis(1,10-phenanthroline-N1,N10)tetrakis(triphenylstibine)tri-, stereoisomer, bis[tetrakis(phenyl)borate(1-)] (9CI) (CA INDEX NAME)

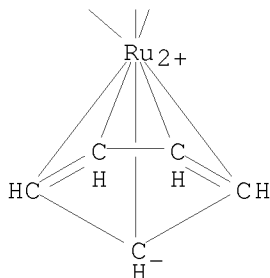
CM 1

CRN 133183-87-6  
CMF C108 H86 N6 Ru3 Sb4  
CCI CCS

PAGE 1-A

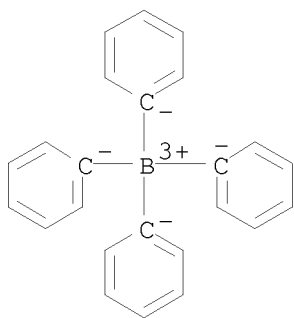






CM 2

CRN 4358-26-3  
 CMF C24 H20 B  
 CCI CCS



OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD  
 (3 CITINGS)

L6 ANSWER 87 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1991:163350 CAPLUS

DOCUMENT NUMBER: 114:163350

ORIGINAL REFERENCE NO.: 114:27613a, 27616a

TITLE: Hydroxylation of methane by a sterically hindered ruthenium complex

AUTHOR(S): Goldstein, Alan S.; Drago, Russell S.

CORPORATE SOURCE: Dep. Chem., Univ. Florida, Gainesville, FL, 32611-2046, USA

SOURCE: Journal of the Chemical Society, Chemical Communications (1991), (1), 21-2  
 CODEN: JCCCCAT; ISSN: 0022-4936

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The sterically crowded cis-[Ru(dmp)2S2](PF6)2 (dmp = 2,9 dimethyl-1,10-phenanthroline, S = Me3CN or H2O) is capable of hydroxylating methane under mild reaction conditions utilizing H2O2 as the primary oxidant; oxidation of this complex with H2O2 is studied spectrophotometrically by UV-visible and NMR spectroscopy implicating ruthenium(VI) as the active oxidant.

IT 133090-93-4 133090-94-5

RL: CAT (Catalyst use); USES (Uses)

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(catalysts, for hydroxylation of methane by hydrogen peroxide,  
mechanism with)

RN 133090-93-4 CAPLUS

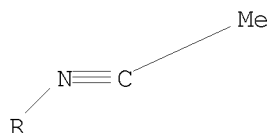
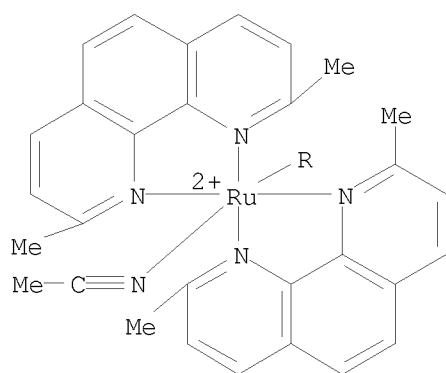
CN Ruthenium(2+), bis(acetonitrile)bis(2,9-dimethyl-1,10-phenanthroline-  
 $\kappa$ N1, $\kappa$ N10)-, (OC-6-22)-, bis[hexafluorophosphate(1-)] (9CI)  
(CA INDEX NAME)

CM 1

CRN 99547-22-5

CMF C32 H30 N6 Ru

CCI CCS

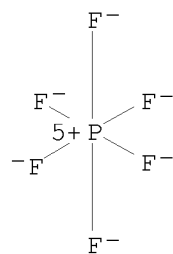


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



RN 133090-94-5 CAPLUS

CN Ruthenium(2+), diaquabis(2,9-dimethyl-1,10-phenanthroline-  
 $\kappa$ N1, $\kappa$ N10)-, (OC-6-22)-, hexafluorophosphate(1-) (1:2) (CA  
INDEX NAME)

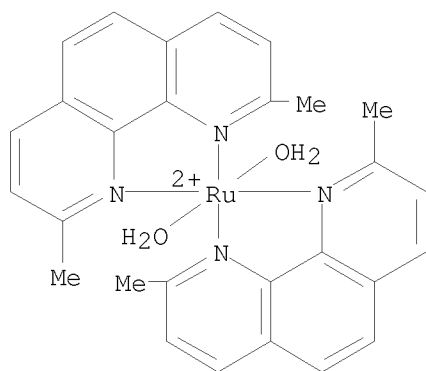
10/585,013

CM 1

CRN 99547-25-8

CMF C28 H28 N4 O2 Ru

CCI CCS

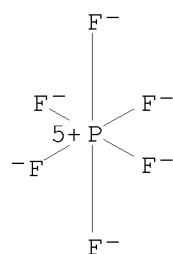


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 57 THERE ARE 57 CAPLUS RECORDS THAT CITE THIS RECORD (58 CITINGS)

L6 ANSWER 88 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1990:554749 CAPLUS

DOCUMENT NUMBER: 113:154749

ORIGINAL REFERENCE NO.: 113:26301a,26304a

TITLE: Oxidation of hydrocarbons by ruthenium-oxo complexes

AUTHOR(S): Che, C. M.; Ho, C.; Lee, W. O.; Lau, T. C.

CORPORATE SOURCE: Dep. Chem., Univ. Hong Kong, Hong Kong, Hong Kong

SOURCE: Preprints - American Chemical Society, Division of

Petroleum Chemistry (1990), 35(2), 179-86

CODEN: ACPCAT; ISSN: 0569-3799

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The activities of Ru oxo complexes containing aromatic diimines, macrocyclic tertiary amines, and porphyrins as ligands were studied as catalysts for the oxidation of adamantane, cyclohexane, 2,3-dimethylbutane, and methylcyclohexane. tert-BuOOH was a better oxidant than PhIO. Ru

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complexes containing dichlorobipyridine ligands were especially effective.

IT 37002-34-9 99547-26-9  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts, for oxidation of saturated hydrocarbons)

RN 37002-34-9 CAPLUS

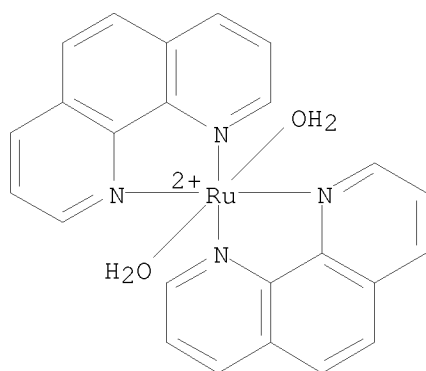
CN Ruthenium(2+), diaquabis(1,10-phenanthroline-N1,N10)-, (OC-6-22)-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 47668-18-8

CMF C24 H20 N4 O2 Ru

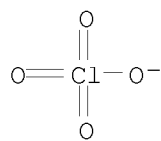
CCI CCS



CM 2

CRN 14797-73-0

CMF Cl O4



RN 99547-26-9 CAPLUS

CN Ruthenium(2+), diaquabis(2,9-dimethyl-1,10-phenanthroline-N1,N10)-, (OC-6-22)-, diperchlorate (9CI) (CA INDEX NAME)

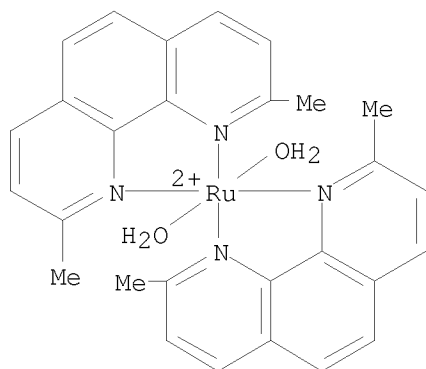
CM 1

CRN 99547-25-8

CMF C28 H28 N4 O2 Ru

CCI CCS

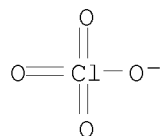
10/585,013



CM 2

CRN 14797-73-0

CMF C1 O4



L6 ANSWER 89 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1990:150586 CAPLUS

DOCUMENT NUMBER: 112:150586

ORIGINAL REFERENCE NO.: 112:25239a,25242a

TITLE: Carbonylation of ruthenium(II) bischelates by formic acid

AUTHOR(S): Popov, A. M.; Egorova, M. B.

CORPORATE SOURCE: Leningr. Pediatr. Med. Inst., Leningrad, USSR

SOURCE: Koordinatsionnaya Khimiya (1989), 15(9), 1257-71  
CODEN: KOKHDC; ISSN: 0132-344X

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB cis-[RuL<sub>2</sub>(CO)X]<sup>+</sup> (L = 2,2'-bipyridine, 1,10-phenanthroline) and trans-[RuL<sub>2</sub>X<sub>2</sub>] (L<sub>1</sub> = (Ph<sub>2</sub>P)<sub>2</sub>CH<sub>2</sub>, dppe, cis-Ph<sub>2</sub>PCH:CHPh<sub>2</sub>) were obtained by carbonylation of [RuL<sub>2</sub>X<sub>2</sub>] and [RuL<sub>2</sub>X<sub>2</sub>], resp., with boiling HCO<sub>2</sub>H. Treatment of [RuL<sub>2</sub>(CO)<sub>3</sub>] with HCO<sub>2</sub>H gave [RuL<sub>2</sub>(CO)(HCO<sub>2</sub>)]<sup>+</sup> which isomerized thermally to [RuL<sub>2</sub>(CO)(CO<sub>2</sub>H)]<sup>+</sup>. Thermolysis of [RuL<sub>2</sub>(CO)(CO<sub>2</sub>H)]<sup>+</sup> gave [RuL<sub>2</sub>(CO)H]<sup>+</sup>. Lengthy carbonylation of [RuL<sub>2</sub>X<sub>2</sub>] (L<sub>1</sub> = dppe, cis-Ph<sub>2</sub>PCH:CHPh<sub>2</sub>) gave [RuL<sub>2</sub>(CO)H]<sup>+</sup>. A method was developed for the preparation of [RuL<sub>2</sub>(CO)X]<sup>q+</sup> (X = N<sub>3</sub>, NO<sub>2</sub>, NCS, CN, py, MeCN). The protolytic stability of [RuL<sub>2</sub>(CO)(NO<sub>2</sub>)]<sup>+</sup> and [RuL<sub>2</sub>(CO)(CO<sub>2</sub>H)]<sup>+</sup> was studied in solution. The complexes prepared were characterized by IR and electronic spectra and cyclic voltammetry.

IT 125589-50-6

RL: RCT (Reactant); RACT (Reactant or reagent)  
(carbonylation of, by formic acid)

RN 125589-50-6 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-N1,N10)-, (OC-6-22)-, bis[tetrafluoroborate(1-)] (9CI) (CA INDEX NAME)

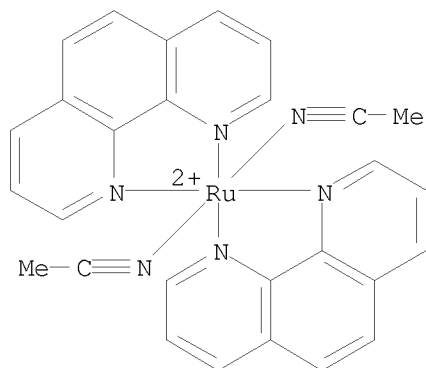
10/585,013

CM 1

CRN 85370-14-5

CMF C28 H22 N6 Ru

CCI CCS

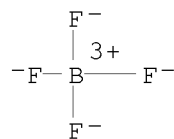


CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
(1 CITINGS)

L6 ANSWER 90 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1989:646701 CAPLUS

DOCUMENT NUMBER: 111:246701

ORIGINAL REFERENCE NO.: 111:40715a, 40718a

TITLE: Oligomeric dicyanobis(polypyridine)ruthenium(II) complexes. Synthesis, spectroscopic, and photophysical properties

AUTHOR(S): Bignozzi, C. A.; Roffia, S.; Chiorboli, C.; Davila, J.; Indelli, M. T.; Scandola, F.

CORPORATE SOURCE: Cent. Fotochim., Univ. Ferrara, Ferrara, 44100, Italy

SOURCE: Inorganic Chemistry (1989), 28(24), 4350-8

CODEN: INOCAJ; ISSN: 0020-1669

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The polychromophoric {[ (NC)Ru(bpy)2]2CN}+ (I; bpy = 2,2'-bipyridine) {[ (NC)Ru(bpy)2]CN}+ (II; phen = phenanthroline) and (NC)Ru(bpy)2 (CN)Ru(bpy)2 (NC)Ru(bpy)2 (CN)2+ (III) were prepared, and their redox, spectroscopic, and photophys. properties studied and compared with those of Ru(bpy)2 (CN)2 and Ru(phen)2 (CN)2. In the series Ru(bpy)2 (CN)2,

I, III,  $\text{Ru}(\text{phen})_2(\text{CN})_2$  and II, the ease of oxidation of the Ru atoms increases in the order  $(\text{NC})\text{Ru}(\text{CN})$ ,  $(\text{CN})\text{Ru}(\text{CN})$ ,  $(\text{CN})\text{Ru}(\text{NC})$ . All the complexes were found to be emitting, with monoexponential decays of the emission intensity at 298 and 77 K. The energy of the emissions undergoes a bathochromic shift in going from mononuclear to polynuclear species, indicating that the lowest  $d-\pi^*$  triplet excited state is on the N-bonded  $\text{Ru}(\text{bpy})_2^{2+}$  or  $\text{Ru}(\text{phen})_2^{2+}$  chromophoric unit and that intramol. energy transfer between the C-bonded and N-bonded chromophores is very efficient. The singly oxidized forms of  $\{[(\text{NC})\text{Ru}(\text{bpy})_2]_2\text{CN}\}^{2+}$  (IV),  $(\text{NC})\text{Ru}(\text{bpy})_2(\text{CN})\text{Ru}(\text{phen})_2(\text{CN})_2^{+}$  (V), and  $(\text{NC})\text{Ru}(\text{bpy})_2(\text{CN})\text{Ru}(\text{bpy})_2(\text{NC})\text{Ru}(\text{bpy})_2(\text{CN})_3^{+}$  (VI) were electrochem. or chemical generated in D2O solns. The intense metal-to-metal ( $\text{RuII} \rightarrow \text{RuIII}$ ) intervalence transitions observed for the mixed-valence species in the near-IR region indicate a high degree of electron delocalization relative to that of typical class II mixed-valence compds. The lack of emission for IV-VI is assigned to highly efficient intramol. electron-transfer quenching processes.

IT 123099-67-2

RL: RCT (Reactant); RACT (Reactant or reagent)  
(luminescence quenching and elec. potential of couple containing)

RN 123099-67-2 CAPLUS

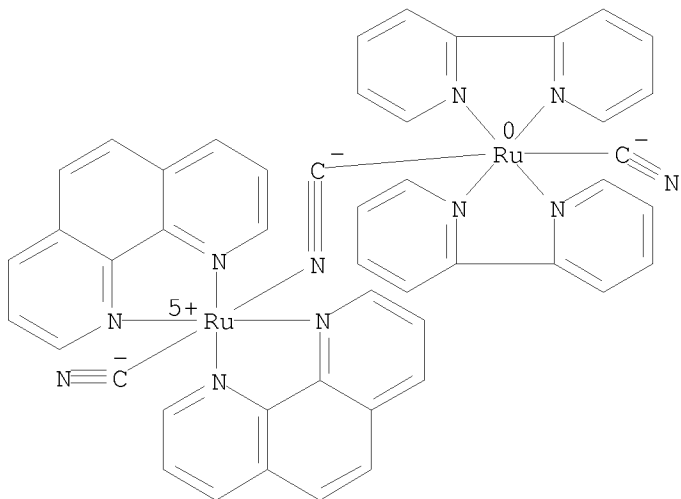
CN Ruthenium(2+), bis(2,2'-bipyridine-N,N') [ $\mu$ -(cyano-C:N)]bis(cyano-C)bis(1,10-phenanthroline-N1,N10)di-, stereoisomer, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 123099-66-1

CMF C47 H32 N11 Ru2

CCI CCS



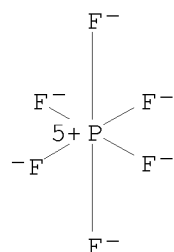
CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS

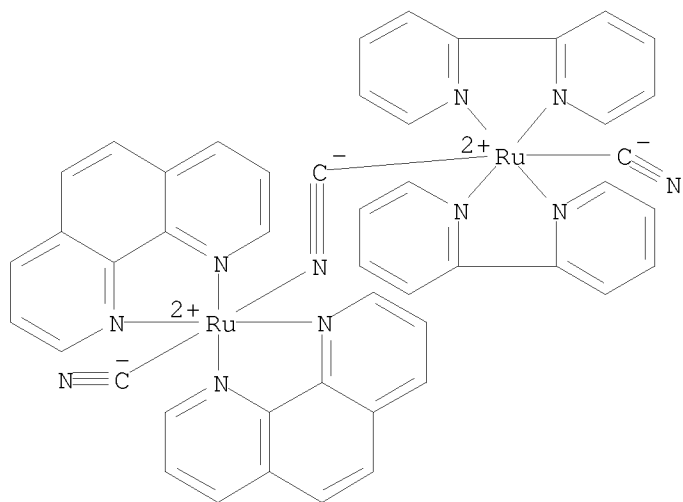
10/585,013



IT 123099-59-2P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and luminescence and electrooxidn. of)  
RN 123099-59-2 CAPLUS  
CN Ruthenium(1+), bis(2,2'-bipyridine-N,N') [ $\mu$ -(cyano-C:N)]bis(cyano-C)bis(1,10-phenanthroline-N1,N10)di-, stereoisomer,  
hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 123099-58-1  
CMF C47 H32 N11 Ru2  
CCI CCS

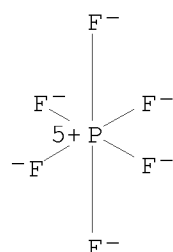


CM 2

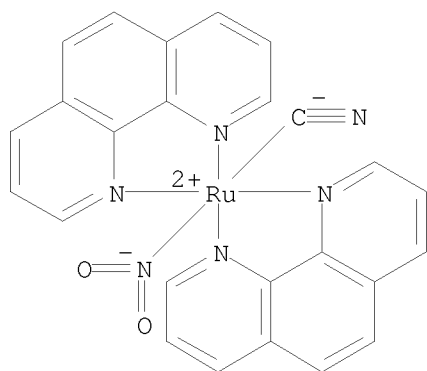
CRN 16919-18-9  
CMF F6 P  
CCI CCS



10/585,013

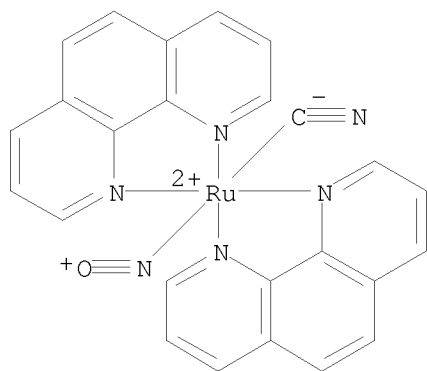


IT 123099-55-8P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and reaction of, with cyanide)  
RN 123099-55-8 CAPLUS  
CN Ruthenium, (cyano-C) (nitrito-N) bis(1,10-phenanthroline-N1,N10)-,  
(OC-6-23)- (9CI) (CA INDEX NAME)



IT 123099-57-0P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and reactions of, with azide and with ruthenium complex with  
bipyridine and cyanide)  
RN 123099-57-0 CAPLUS  
CN Ruthenium(2+), (cyano-C) nitrosyl bis(1,10-phenanthroline-N1,N10)-,  
(OC-6-23)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 123099-56-9  
CMF C25 H16 N6 O Ru  
CCI CCS

10/585,013

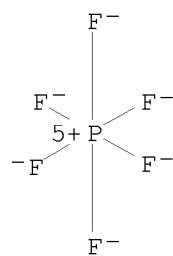


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



IT 31450-89-2

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with cyanide)

RN 31450-89-2 CAPLUS

CN Ruthenium(2+), nitronitrosylbis(1,10-phenanthroline-N1,N10)-, (OC-6-33)-,  
bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

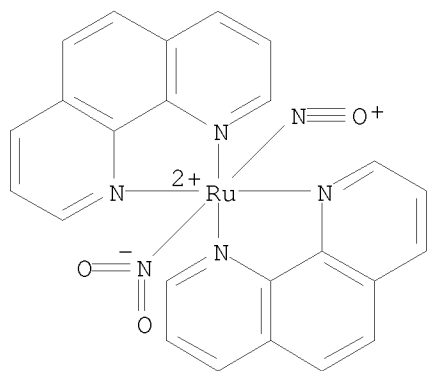
CM 1

CRN 47736-19-6

CMF C24 H16 N6 O3 Ru

CCI CCS

10/585,013

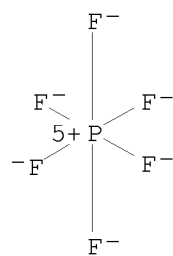


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



IT 123099-61-6

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with ruthenium complex with bipyridine and cyanide)

RN 123099-61-6 CAPLUS

CN Ruthenium(1+), (cyano-C) (methanol)bis(1,10-phenanthroline-N1,N10)-, (OC-6-23)-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

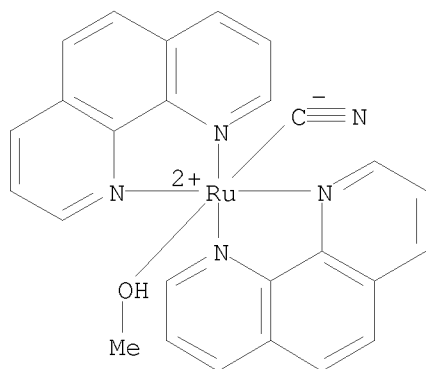
CM 1

CRN 123099-60-5

CMF C26 H20 N5 O Ru

CCI CCS

10/585,013

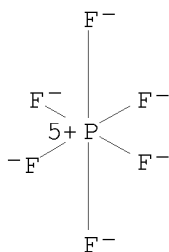


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 34 THERE ARE 34 CAPLUS RECORDS THAT CITE THIS RECORD (37 CITINGS)

L6 ANSWER 91 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1989:212170 CAPLUS

DOCUMENT NUMBER: 110:212170

ORIGINAL REFERENCE NO.: 110:35199a,35202a

TITLE: Ruthenium catalyzed oxidation of alkanes with alkyl hydroperoxides

AUTHOR(S): Lau, Tai Chu; Che, Chi Ming; Lee, Wai On; Poon, Chung Kwong

CORPORATE SOURCE: Dep. Chem., Univ. Hong Kong, Hong Kong

SOURCE: Journal of the Chemical Society, Chemical Communications (1988), (21), 1406-7  
CODEN: JCCCAT; ISSN: 0022-4936

DOCUMENT TYPE: Journal

LANGUAGE: English

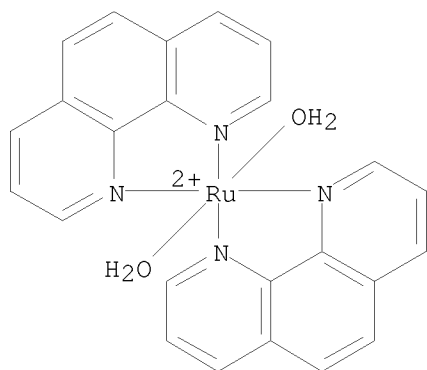
OTHER SOURCE(S): CASREACT 110:212170

AB Saturated hydrocarbons were oxidized by Me<sub>3</sub>COOH in the presence of cis-[Ru(L<sub>2</sub>)(OH<sub>2</sub>)<sub>2</sub>]<sup>2+</sup> (L = 2,2'-bipyridine-6,6-dichloro-2,2'-bipyridine, 1,10-phenanthroline, 2,9-dimethyl-1,10-phenanthroline) to give alcs. and ketones. In the oxidation of cyclohexane a catalyst turnover number of 4000 and

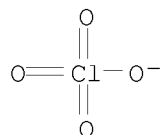
a combined yield of 57% for cyclohexanone and cyclohexanol were achieved. The data support a mechanism involving H abstraction by radical species.

10/585,013

IT 37002-34-9 120594-29-8  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(catalysts from, for oxidation of alkanes with Bu hydroperoxide)  
RN 37002-34-9 CAPLUS  
CN Ruthenium(2+), diaquabis(1,10-phenanthroline-N1,N10)-, (OC-6-22)-,  
diperchlorate (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 47668-18-8  
CMF C24 H20 N4 O2 Ru  
CCI CCS

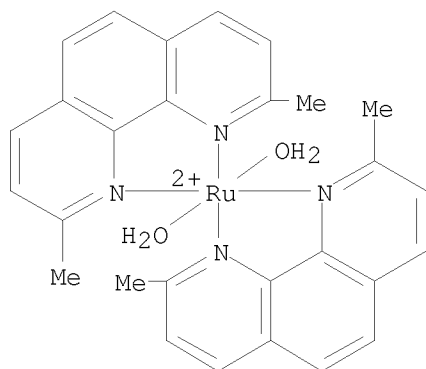


CM 2  
  
CRN 14797-73-0  
CMF C1 O4



RN 120594-29-8 CAPLUS  
CN Ruthenium(2+), diaquabis(2,9-dimethyl-1,10-phenanthroline-N1,N10)-,  
(OC-6-22)-, salt with trifluoromethanesulfonic acid (1:2) (9CI) (CA INDEX  
NAME)  
  
CM 1  
  
CRN 99547-25-8  
CMF C28 H28 N4 O2 Ru  
CCI CCS

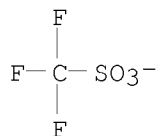
10/585,013



CM 2

CRN 37181-39-8

CMF C F3 O3 S



OS.CITING REF COUNT: 43 THERE ARE 43 CAPLUS RECORDS THAT CITE THIS RECORD (43 CITINGS)

L6 ANSWER 92 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1988:642953 CAPLUS

DOCUMENT NUMBER: 109:242953

ORIGINAL REFERENCE NO.: 109:39995a,39998a

TITLE: Synthetic routes to new polypyridyl complexes of osmium(II)

AUTHOR(S): Kober, Edward M.; Caspar, Jonathan V.; Sullivan, B. Patrick; Meyer, Thomas J.

CORPORATE SOURCE: Dep. Chem., Univ. North Carolina, Chapel Hill, NC, 27514, USA

SOURCE: Inorganic Chemistry (1988), 27(25), 4587-98

CODEN: INOCAJ; ISSN: 0020-1669

DOCUMENT TYPE: Journal

LANGUAGE: English

AB New luminescent complexes of Os(II) that contain either 2,2'-bipyridine (bpy) or 1,10-phenanthroline (phen) as the chromophoric acceptor ligand were prepared by a combination of established and new synthetic methods. Extensive use of Os(IV) and Os(III) precursors, e.g., OsIV(bpy)Cl<sub>4</sub> and mer-OsIII(PMe<sub>2</sub>Ph)Cl<sub>3</sub>, led to the preparation of materials with ancillary ligands such as tertiary phosphines as preparative intermediates, including OsIII(bpy)(PMe<sub>2</sub>Ph)Cl<sub>3</sub> and cis-OsII(phen)LCl<sub>2</sub> (L = phosphines). Further substitution of Cl<sup>-</sup> into complexes such as these gave emissive Os(II) complexes. Another new synthetic route utilizes the versatile Os(II) precursor Os(bpy)2CO<sub>3</sub>, which allows the facile preparation of dicationic, disubstituted species such as [Os(bpy)<sub>2</sub>(nor)]<sup>2+</sup> (nor = norbornadiene). Another general procedure, based on the control of solvent and temperature in the substitution chemical of cis-Os(bpy)2Cl<sub>2</sub>, was

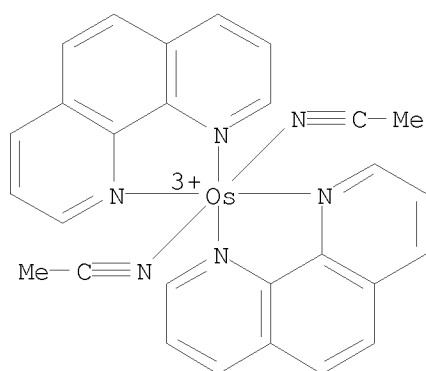
further developed to produce a variety of cis-  $[\text{Os}(\text{bpy})_2\text{L1Cl}]^+$  and cis- $[\text{Os}(\text{bpy})_2\text{L12}]^{2+}$  (L1 = phosphine, arsine, N-donor ligand or olefin). In a few cases, phosphine entering groups cause the cis geometry to be unfavorable and new trans- $[\text{Os}(\text{bpy})_2\text{L2}]^{2+}$  were isolated. Because a major emphasis of this work was to develop a wide variety of luminophors based on OsII-bpy polypyridine type chromophores, the resultant complexes comprise the largest family of transition-metal-based excited-state reagents with tunable photophys. and redox properties available. When possible, the new complexes were characterized by UV-visible and emission spectroscopy, cyclic voltammetry and  $^{31}\text{P}$  and/or  $^1\text{H}$  NMR spectroscopy.

IT 116863-51-5

RL: PRP (Properties)  
(elec. potential of couple containing)

RN 116863-51-5 CAPLUS

CN Osmium(3+), bis(acetonitrile)bis(1,10-phenanthroline-N1,N10)-, (OC-6-22)-  
(9CI) (CA INDEX NAME)



IT 116946-86-2P, cis-Bis(acetonitrile)bis(1,10-phenanthroline)osmium(2+) bis(hexafluorophosphate(1-))

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and electrochem. and spectral properties of)

RN 116946-86-2 CAPLUS

CN Osmium(2+), bis(acetonitrile)bis(1,10-phenanthroline-N1,N10)-, (OC-6-22)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

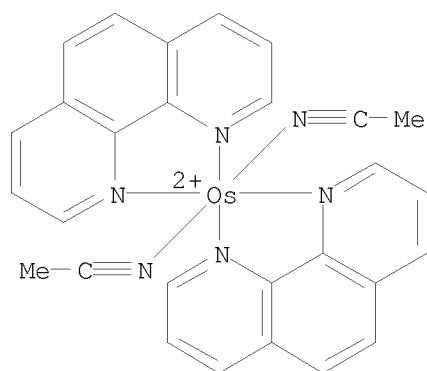
CM 1

CRN 116946-85-1

CMF C28 H22 N6 Os

CCI CCS

10/585,013

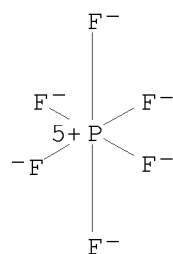


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 182 THERE ARE 182 CAPLUS RECORDS THAT CITE THIS RECORD (186 CITINGS)

L6 ANSWER 93 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1988:603673 CAPLUS

DOCUMENT NUMBER: 109:203673

ORIGINAL REFERENCE NO.: 109:33501a,33504a

TITLE: Influence of variations in the chromophoric ligand on the properties of metal-to-ligand charge-transfer excited states

AUTHOR(S): Johnson, Susan R.; Westmoreland, T. David; Caspar, Jonathan V.; Barqawi, Khaled R.; Meyer, Thomas J.

CORPORATE SOURCE: Dep. Chem., Univ. North Carolina, Chapel Hill, NC, 27514, USA

SOURCE: Inorganic Chemistry (1988), 27(18), 3195-200

CODEN: INOCAJ; ISSN: 0020-1669

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The effects of variations in the chromophoric ligand on the properties of the metal-to-ligand charge-transfer (MLCT) excited states in the series [Os(PP)<sub>3</sub>]<sup>2+</sup>, [(PP)<sub>2</sub>Os(py)<sub>2</sub>]<sup>2+</sup>, and [(PP)<sub>2</sub>Os(LL)]<sup>2+</sup> (PP = 2,2'-bipyridine, 1,10-phenanthroline, or a substituted derivative; LL = 1,2-bis(dimethylarsino)benzene, Ph<sub>2</sub>PCH<sub>2</sub>PPh<sub>2</sub>, Ph<sub>2</sub>PCH:CHPPh<sub>2</sub> 1,2-bis(diphenylphosphino)benzene) were studied. Several complexes were newly prepared From a series of electrochem. and photophys. measurements it



has been determined that (1) substituent variations in the chromophoric ligands have a relative minor effect on the  $d\pi(\text{Os})$  levels as evidenced by variations in  $E_{1/2}$  values for the ground-state  $\text{Os}(\text{III}/\text{II})$  couples, (2) linear correlations exist between MLCT absorption or emission band energies and the difference in metal-based oxidation had ligand-based reduction potentials,  $E_{1/2}(\text{OsIII}/\text{II}) - E_{1/2}(\text{PP0}/-)$ , and (3) a linear relation between  $\ln k_{\text{nr}}$  and the emission energy,  $E_{\text{em}}$ , exists, consistent with the energy gap law. For nonradiative decay both the pattern of acceptor vibrations and the vibronic electronic coupling term remain relatively constant as the chromophoric ligand is varied.

IT 115246-40-7

RL: PRP (Properties)

(elec. potential of couple containing, metal-to-ligand charge transfer in relation to)

RN 115246-40-7 CAPLUS

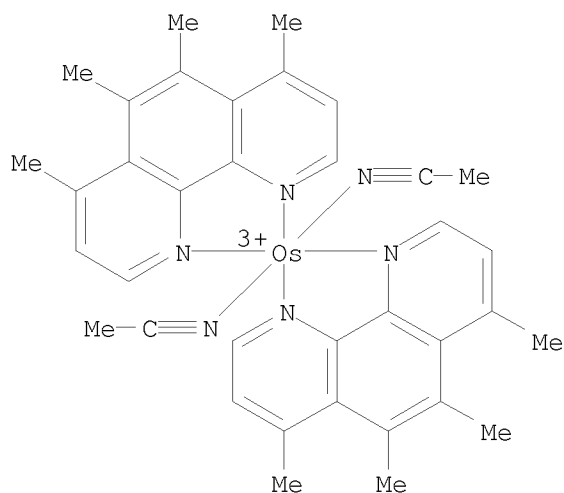
CN Osmium(3+), bis(acetonitrile)bis(4,5,6,7-tetramethyl-1,10-phenanthroline-N1,N10)-, (OC-6-22)-, tris[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 115246-39-4

CMF C36 H38 N6 Os

CCI CCS



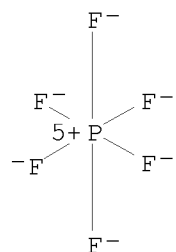
CM 2

CRN 16919-18-9

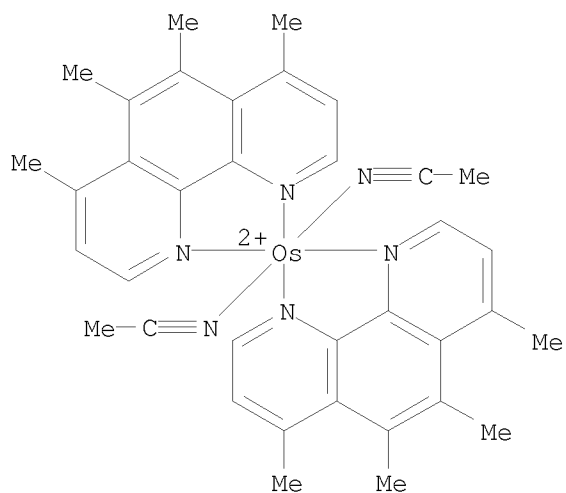
CMF F6 P

CCI CCS

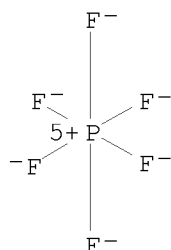
10/585,013



IT 115245-97-1  
RL: PRP (Properties)  
(metal-to-ligand charge transfer in, redox potential in relation to)  
RN 115245-97-1 CAPLUS  
CN Osmium(2+), bis(acetonitrile)bis(4,5,6,7-tetramethyl-1,10-phenanthroline-N1,N10)-, (OC-6-22)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)  
CM 1  
CRN 115245-96-0  
CMF C36 H38 N6 Os  
CCI CCS



CM 2  
CRN 16919-18-9  
CMF F6 P  
CCI CCS



OS.CITING REF COUNT: 58 THERE ARE 58 CAPLUS RECORDS THAT CITE THIS RECORD (58 CITINGS)

L6 ANSWER 94 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1988:485038 CAPLUS

DOCUMENT NUMBER: 109:85038

ORIGINAL REFERENCE NO.: 109:14031a,14034a

TITLE: Chelates of nitrosylosmium with nitrogen heterocycles

AUTHOR(S): Nikol'skii, A. B.; Popov, A. M.; Simonenko, N. G.; Khorunzhii, V. V.; Egorova, M. B.

CORPORATE SOURCE: Leningr. Gos. Univ., Leningrad, USSR

SOURCE: Zhurnal Obshchei Khimii (1988), 58(4), 930-1

CODEN: ZOKHA4; ISSN: 0044-460X

DOCUMENT TYPE: Journal

LANGUAGE: Russian

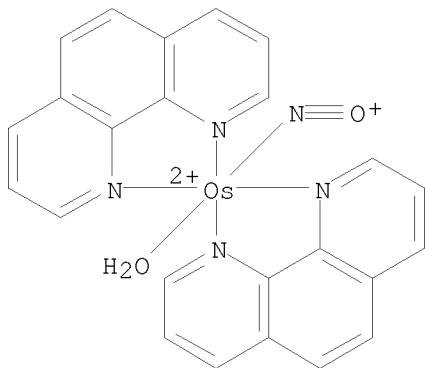
AB Treatment of cis-OsL<sub>2</sub>Cl<sub>2</sub> (L = 2,2'-bipyridine and 1,10-phenanthroline) with NaNO<sub>2</sub> in boiling aqueous medium gave cis-[OsL<sub>2</sub>(NO)(H<sub>2</sub>O)]<sup>3+</sup> (I) which were treated with HX (X = Cl, Br) with heating, followed with NaZ (Z = ClO<sub>4</sub>, BF<sub>4</sub>) to give cis-[OsL<sub>2</sub>(NO)X]Z<sub>2</sub>. The reaction of I with NaNO<sub>2</sub> gave cis-OsL<sub>2</sub>(NO<sub>2</sub>)<sub>2</sub> which reacted with HZ to give cis-[OsL<sub>2</sub>(NO)(NO<sub>2</sub>)]Z<sub>2</sub>. The consts. were determined for the reversible acid-base interaction: cis-[OsL<sub>2</sub>(NO)X]<sup>2+</sup> + 2OH<sup>-</sup> ⇌ cis-[OsL<sub>2</sub>(NO<sub>2</sub>)X] + H<sub>2</sub>O.

IT 115685-60-4P

RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(formation and reaction of, with hydrogen halides or nitrite)

RN 115685-60-4 CAPLUS

CN Osmium(3+), aquanitrosylbis(1,10-phenanthroline-N1,N10)-, (OC-6-33)- (9CI)  
(CA INDEX NAME)



IT 115669-28-8P

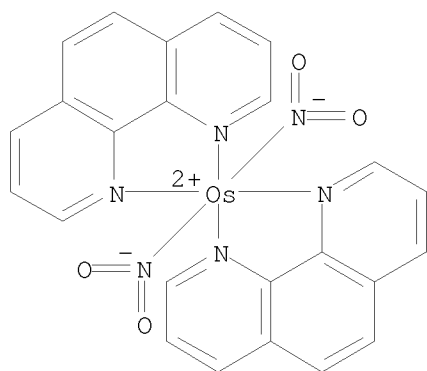
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

10/585,013

(preparation and reaction of, with perchloric acid or hydrogen  
tetrafluoroborate)

RN 115669-28-8 CAPLUS

CN Osmium, bis(nitrito-N)bis(1,10-phenanthroline-N1,N10)-, (OC-6-22)- (9CI)  
(CA INDEX NAME)



IT 115669-33-5P 115669-34-6P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 115669-33-5 CAPLUS

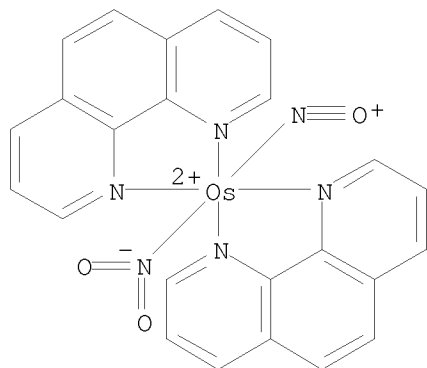
CN Osmium(2+), (nitrito-N)nitrosylbis(1,10-phenanthroline-N1,N10)-,  
(OC-6-33)-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 115669-32-4

CMF C24 H16 N6 O3 Os

CCI CCS

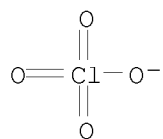


CM 2

CRN 14797-73-0

CMF C1 O4

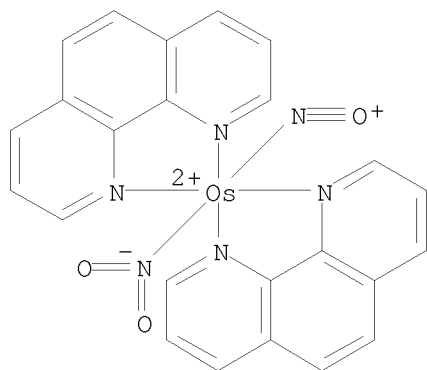
10/585,013



RN 115669-34-6 CAPLUS  
CN Osmium(2+), (nitrito-N)nitrosylbis(1,10-phenanthroline-N1,N10)-,  
(OC-6-33)-, bis[tetrafluoroborate(1-)] (9CI) (CA INDEX NAME)

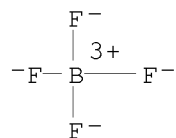
CM 1

CRN 115669-32-4  
CMF C24 H16 N6 O3 Os  
CCI CCS



CM 2

CRN 14874-70-5  
CMF B F4  
CCI CCS



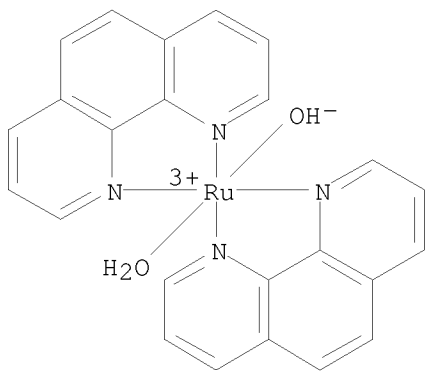
L6 ANSWER 95 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 1988:193421 CAPLUS  
DOCUMENT NUMBER: 108:193421  
ORIGINAL REFERENCE NO.: 108:31677a,31680a  
TITLE: Substitution and isomerization reactions of  
(polypyridyl)ruthenium(III) complexes and the  
catalysis of ruthenium(II) reactions  
AUTHOR(S): Chang, J.; Meyerhoffer, S.; Allen, L. R.; Durham, B.;  
Walsh, J. L.  
CORPORATE SOURCE: Dep. Chem., Univ. Arkansas, Fayetteville, AR, 72701,

USA  
 SOURCE: Inorganic Chemistry (1988), 27(9), 1602-7  
 CODEN: INOCAJ; ISSN: 0020-1669  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB The kinetics of substitution of acetonitrile for the H<sub>2</sub>O ligand of trans-Ru(NN)<sub>2</sub>(H<sub>2</sub>O)(OH)<sub>2</sub><sup>+</sup> (NN = 2,2'-bipyridyl (bpy)) and isomerization of trans-Ru(NN)<sub>2</sub>(H<sub>2</sub>O)(OH)<sub>2</sub><sup>+</sup> (NN = bpy or 1,10-phenanthroline (phen)) were studied. The substitution reaction is a reversible reaction that is 1st order in acetonitrile and in Ru complex. The rate is a strong function of pH with no observable contribution from the diaquo species below pK<sub>a1</sub> (1.5) or from the dihydroxo species above pK<sub>a2</sub> (5.2). K<sub>a1</sub> And K<sub>a2</sub> are the acid dissociation consts. for the diaquo and the aquo hydroxo complexes, resp. The Ru(III) complex catalyzes the substitution reactions of trans-Ru(NN)<sub>2</sub>(H<sub>2</sub>O)<sub>2</sub><sup>2+</sup>, and a catalytic mechanism is defined. The isomerization of trans-Ru(NN)<sub>2</sub>(H<sub>2</sub>O)(OH)<sub>2</sub><sup>+</sup> is 1st order. The pH dependence of the isomerization is complex. The Ru(III) complex catalyzes the isomerization of trans-Ru(NN)<sub>2</sub>(H<sub>2</sub>O)<sub>2</sub><sup>2+</sup> by a mechanism analogous to the substitution mechanism. Activation enthalpies and entropies are given for both reactions.

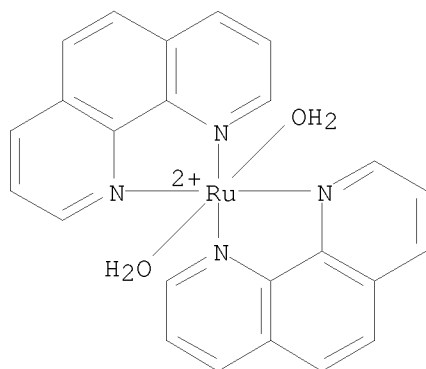
IT 108340-25-6  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
 (isomerization of, kinetics and mechanism of)

RN 108340-25-6 CAPLUS  
 CN Ruthenium(2+), aquahydroxybis(1,10-phenanthroline-N1,N10)-, (OC-6-23)- (9CI) (CA INDEX NAME)



IT 85439-53-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (isomerization of, kinetics and mechanism of ruthenium(III)  
 complex-catalyzed)

RN 85439-53-8 CAPLUS  
 CN Ruthenium(2+), diaquabis(1,10-phenanthroline-N1,N10)-, (OC-6-12)- (9CI)  
 (CA INDEX NAME)



L6 ANSWER 96 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1988:123365 CAPLUS

DOCUMENT NUMBER: 108:123365

ORIGINAL REFERENCE NO.: 108:20043a,20046a

TITLE: Nucleophilic oxygenation of inner sphere carbon monoxide in cationic ruthenium(II) and osmium(II) complexes

AUTHOR(S): Kukushkin, V. Yu.; Egorova, M. B.; Popov, A. M.

CORPORATE SOURCE: Leningr. Gos. Univ., Leningrad, USSR

SOURCE: Koordinatsionnaya Khimiya (1987), 13(11), 1507-12  
CODEN: KOKHDC; ISSN: 0132-344X

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The reaction of Me<sub>3</sub>NO with [Ru(phen)<sub>2</sub>(CO)(NO<sub>2</sub>)]ClO<sub>4</sub> (phen = 1,10-phenanthroline), [Ru(bpy)(dppe)(CO)X]BF<sub>4</sub> (bpy = 2,2'-bipyridine; X = Cl, Br, CN) and [M(bpy)<sub>2</sub>(CO)Cl]BF<sub>4</sub> (M = Ru, Os) was studied. Under mild conditions Me<sub>3</sub>NO selectively oxidizes coordinated CO in the presence of such ligands as NO<sub>2</sub><sup>-</sup> and CN<sup>-</sup> with substitution. The mechanism of the secondary substitution reaction in the decarbonylated complexes depends on the nature of the solvent and the mutual effect of the ligands.

IT 113230-44-7P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 113230-44-7 CAPLUS

CN Ruthenium(1+), (N,N-dimethylmethanamine)(nitrito-N)bis(1,10-phenanthroline-N1,N10)-, tetraphenylborate(1-) (9CI) (CA INDEX NAME)

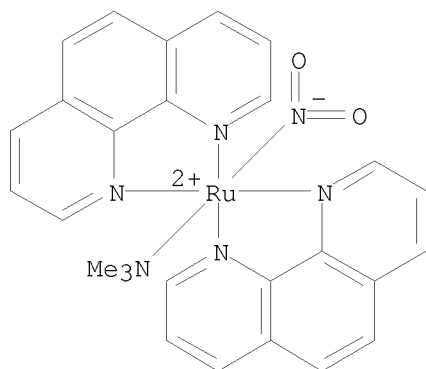
CM 1

CRN 113230-43-6

CMF C27 H25 N6 O2 Ru

CCI CCS

10/585,013

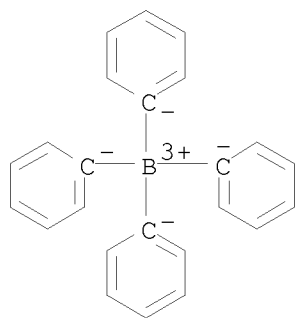


CM 2

CRN 4358-26-3

CMF C24 H20 B

CCI CCS



L6 ANSWER 97 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1987:203952 CAPLUS

DOCUMENT NUMBER: 106:203952

ORIGINAL REFERENCE NO.: 106:32941a,32944a

TITLE: Oxidation of organic substrates catalyzed by

trans-[RuIII(phen)2(OH)(OH2)][ClO4]2 and

trans-[RuIII(bpy)2(OH)(OH2)][ClO4]2 (phen =

1,10-phenanthroline; bpy = 2,2'-bipyridine)

AUTHOR(S): Che, Chi Ming; Leung, Wai Ho; Poon, Chung Kwong

CORPORATE SOURCE: Dep. Chem., Univ. Hong Kong, Hong Kong

SOURCE: Journal of the Chemical Society, Chemical

Communications (1987), (3), 173-5

CODEN: JCCCAT; ISSN: 0022-4936

DOCUMENT TYPE: Journal

LANGUAGE: English

AB trans-[RuIII(phen)2(OH)(OH2)][ClO4]2 and

trans-[RuIII(bpy)2(OH)(OH2)][ClO4]2 are active catalysts for the PhI<sub>2</sub> and aerobic oxidation of organic substrates. A modified electrode, through adsorption of trans-[RuIII(phen)2(OH)(OH2)][ClO4]2, was active in the oxidation of alc. to give aldehyde (or ketone).

IT 108340-26-7

RL: PRP (Properties)

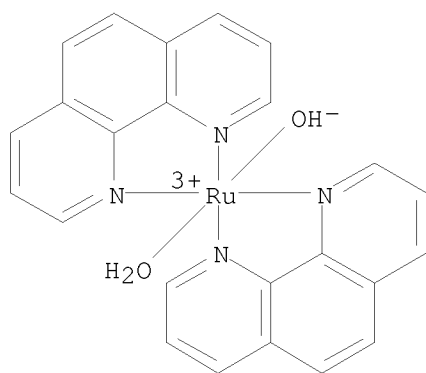


10/585,013

(cyclic voltammetry of and use as catalyst for oxidation of organic compds.)  
RN 108340-26-7 CAPLUS  
CN Ruthenium(2+), aquahydroxybis(1,10-phenanthroline-N1,N10)-, (OC-6-23)-,  
diperchlorate (9CI) (CA INDEX NAME)

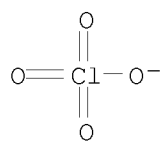
CM 1

CRN 108340-25-6  
CMF C24 H19 N4 O2 Ru  
CCI CCS

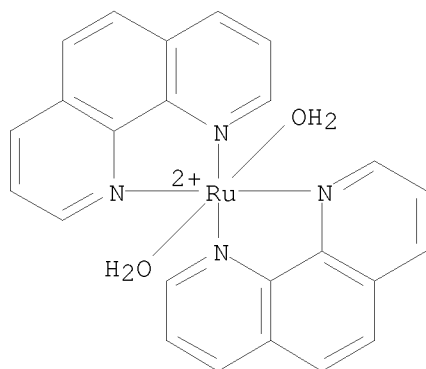


CM 2

CRN 14797-73-0  
CMF Cl O4



IT 85439-53-8  
RL: PRP (Properties)  
(electrochem. formation and half-wave potential of couple containing)  
RN 85439-53-8 CAPLUS  
CN Ruthenium(2+), diaquabis(1,10-phenanthroline-N1,N10)-, (OC-6-12)- (9CI)  
(CA INDEX NAME)



OS.CITING REF COUNT: 9 THERE ARE 9 CAPLUS RECORDS THAT CITE THIS RECORD  
(9 CITINGS)

L6 ANSWER 98 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1987:167736 CAPLUS

DOCUMENT NUMBER: 106:167736

ORIGINAL REFERENCE NO.: 106:27099a,27102a

TITLE: Catalytic epoxidation of alkenes by sterically crowded ruthenium complexes

AUTHOR(S): Bailey, Cynthia L.; Drago, Russell S.

CORPORATE SOURCE: Dep. Chem., Univ. Florida, Gainesville, FL, 32611, USA

SOURCE: Journal of the Chemical Society, Chemical

Communications (1987), (3), 179-80

CODEN: JCCCAT; ISSN: 0022-4936

DOCUMENT TYPE: Journal

LANGUAGE: English

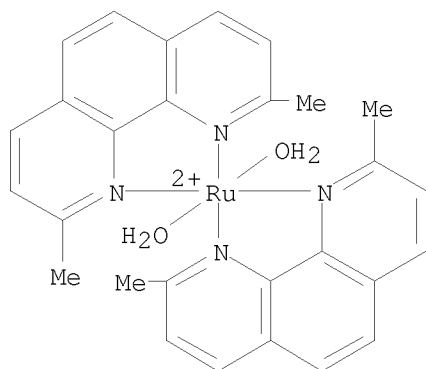
AB The addition of Ce(IV) to  $[\text{Ru}(\text{dmp})(\text{H}_2\text{O})]^{2+}$  (dmp = 2,9-dimethyl-1,10-phenanthroline) gave  $[\text{RuO}_2(\text{dmp})_2](\text{PF}_6)_2$  (I).  $[\text{RuO}(\text{OH}_2)(\text{dmp})_2](\text{PF}_6)_2$  (II) was also prepared. In the presence of I or II as catalysts, norbornene, cyclohexene and trans- $\beta$ -methylstyrene were efficiently oxidized. Norbornene was the most selective and active system. trans- $\beta$ -Methylstyrene was examined to determine the stereoselectivity of the epoxide formation.

IT 99547-25-8

RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidation of)

RN 99547-25-8 CAPLUS

CN Ruthenium(2+), diaquabis(2,9-dimethyl-1,10-phenanthroline-N1,N10)-,  
(OC-6-22)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 26 THERE ARE 26 CAPLUS RECORDS THAT CITE THIS RECORD (26 CITINGS)

L6 ANSWER 99 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1987:127766 CAPLUS

DOCUMENT NUMBER: 106:127766

ORIGINAL REFERENCE NO.: 106:20721a,20724a

TITLE: Valence levels of ruthenium(II) and osmium(II) complexes studied by voltammetry and x-ray photoelectron spectroscopy

AUTHOR(S): Matsumura-Inoue, Takeko; Ikemoto, Isao; Umezawa, Yoshio

CORPORATE SOURCE: Dep. Chem., Nara Univ. Educ., Takabatake, 630, Japan

SOURCE: Journal of Electroanalytical Chemistry and Interfacial Electrochemistry (1986), 209(1), 135-50  
CODEN: JEIEBC; ISSN: 0022-0728

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The correlation between the oxidation potentials for a reversible 1-electron process and the valence level binding energies measured by XPS was examined with a series of  $M_2L_2X_2(2+n)^+$  ( $ML_3^{2+}$ ) complexes ( $M = Ru$  or  $Os$ ,  $L = 2,2'$ -bipyridine or 1,10-phenanthroline,  $X_2 = (py)_2$ ,  $(NH_3)_2$ ,  $(NO_2^-)_2$ ,  $(CN^-)_2$ ,  $(Cl^-)_2$ ,  $(Cl^-)_2$ , etc.). The oxidation peak potentials of these complexes varied proportionally with the energies of the lowest charge-transfer bands of the complexes. Linear correlations were obtained between the oxidation peak potentials,  $E_{+0x}$ , and the valence level binding energies,  $\Delta E_v$ , of XPS. The slopes,  $-\Delta E_v/E_{+0x}$ , are  $>1$ , indicating that the ligands' effect on the metal center of the complex is weakened by the electrostatic interaction in the solid phase.

IT 107040-25-5

RL: PRP (Properties)

(elec. oxidation potential and valence level binding energy of)

RN 107040-25-5 CAPLUS

CN Ruthenium(2+), diamminebis(1,10-phenanthroline-N1,N10)-, bis[tetrafluoroborate(1-)] (9CI) (CA INDEX NAME)

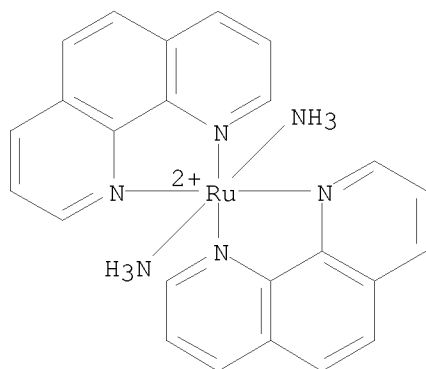
CM 1

CRN 69846-88-4

CMF C24 H22 N6 Ru

CCI CCS

10/585,013

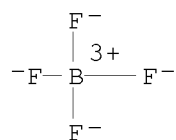


CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



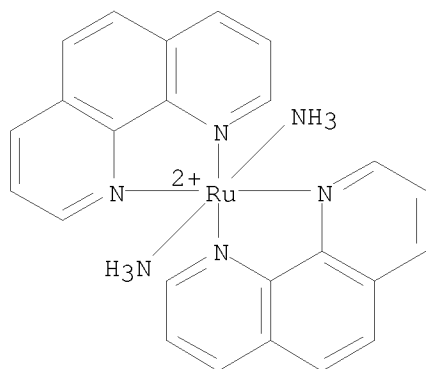
IT 69846-88-4

RL: RCT (Reactant); RACT (Reactant or reagent)

(redox reaction of, electrochem., valence level binding energy in relation to)

RN 69846-88-4 CAPLUS

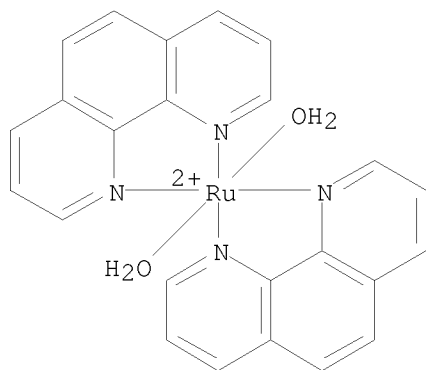
CN Ruthenium(2+), diamminebis(1,10-phenanthroline-N1,N10)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

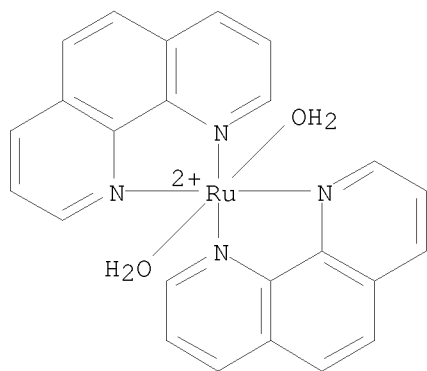
L6 ANSWER 100 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 1987:39190 CAPLUS

DOCUMENT NUMBER: 106:39190  
 ORIGINAL REFERENCE NO.: 106:6453a,6456a  
 TITLE: Substitution reactions of ruthenium(II) complexes containing 2,2'-bipyridine and 1,10-phenanthroline  
 AUTHOR(S): Allen, Linda R.; Craft, Patrick P.; Durham, Bill; Walsh, Jerry  
 CORPORATE SOURCE: Dep. Chem., Univ. Arkansas, Fayetteville, AR, 72701, USA  
 SOURCE: Inorganic Chemistry (1987), 26(1), 53-6  
 CODEN: INOCAJ; ISSN: 0020-1669  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB The rates of substitution of a series of complexes of the general form  $\text{Ru}(\text{nNN})_2(\text{H}_2\text{O})\text{Xq}^+$ , where NN is bipyridine or phenanthroline and X is a monodentate ligand, were examined in aqueous solution. For both the cis and trans isomers, the 2nd-order rate consts. for the substitution of  $\text{H}_2\text{O}$  by  $\text{CH}_3\text{CN}$  depend on the X ligand in the following manner:  $\text{SO}_2 > \text{OH}^- \text{.simeq. PPh}_3 > \text{H}_2\text{O} > \text{CH}_3\text{CN} \text{.simeq. pyridine} > \text{CO}$ . Although no specific trans effect was noted, the rate consts. for substitution in the cis isomers were larger than those for substitution in the corresponding trans isomers by a factor of .apprx.10.  
 IT 85439-53-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (deaquation of, by acetonitrile and pyridine, kinetics of)  
 RN 85439-53-8 CAPLUS  
 CN Ruthenium(2+), diaquabis(1,10-phenanthroline-N1,N10)-, (OC-6-12)- (9CI)  
 (CA INDEX NAME)



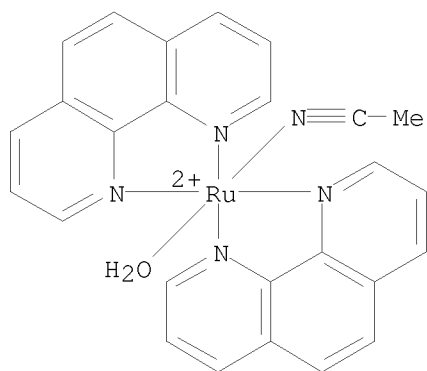
IT 47668-18-8 85370-17-8 105760-44-9  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (deaquation of, by acetonitrile, kinetics of)  
 RN 47668-18-8 CAPLUS  
 CN Ruthenium(2+), diaquabis(1,10-phenanthroline- $\kappa\text{N}1, \kappa\text{N}10$ )-, (OC-6-22)- (CA INDEX NAME)

10/585,013



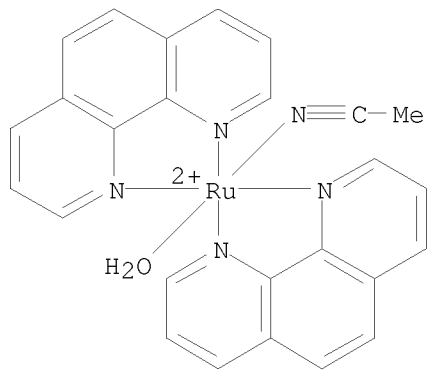
RN 85370-17-8 CAPLUS

CN Ruthenium(2+), (acetonitrile)aquabis(1,10-phenanthroline-N1,N10)-,  
(OC-6-23)- (9CI) (CA INDEX NAME)



RN 105760-44-9 CAPLUS

CN Ruthenium(2+), (acetonitrile)aquabis(1,10-phenanthroline-N1,N10)-,  
(OC-6-33)- (9CI) (CA INDEX NAME)



IT 105761-15-7P

RL: PREP (Preparation)  
(preparation of)

RN 105761-15-7 CAPLUS

10/585,013

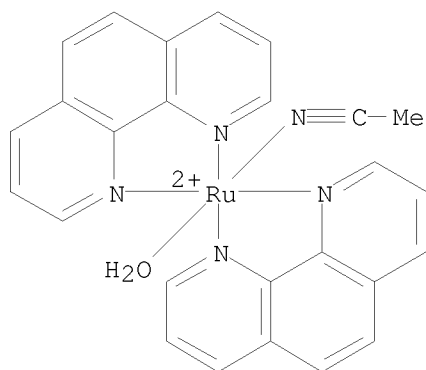
CN Ruthenium(2+), (acetonitrile)aquabis(1,10-phenanthroline-N1,N10)-,  
(OC-6-33)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 105760-44-9

CMF C26 H21 N5 O Ru

CCI CCS

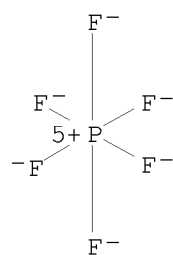


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 14 THERE ARE 14 CAPLUS RECORDS THAT CITE THIS  
RECORD (14 CITINGS)

L6 ANSWER 101 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1986:469380 CAPLUS

DOCUMENT NUMBER: 105:69380

ORIGINAL REFERENCE NO.: 105:11141a,11144a

TITLE: Application of the energy gap law to excited-state  
decay of osmium(II)-polypyridine complexes:  
calculation of relative nonradiative decay rates from  
emission spectral profiles

AUTHOR(S): Kober, Edward M.; Caspar, Jonathan V.; Lumpkin,  
Richard S.; Meyer, Thomas J.

CORPORATE SOURCE: Dep. Chem., Univ. North Carolina, Chapel Hill, NC,  
27514, USA

SOURCE: Journal of Physical Chemistry (1986), 90(16), 3722-34

CODEN: JPCHAX; ISSN: 0022-3654

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The radiative ( $k_r$ ) and nonradiative ( $k_{nr}$ ) decay rates of the metal-to-polypyridine charge-transfer excited states for an extended series of  $[\text{OsII}(\text{bpy}, \text{phen})\text{L}_4]^{n+}$  complexes are reported (bpy = 2,2'-bipyridine; phen = 1,10-phenanthroline; L = halides, N donors, phosphines, CO). Qual.,  $k_r \propto E_{em}^3$  is in accordance with the Einstein law for spontaneous emission, and  $k_{nr} \propto \exp(-E_{em})$  is in accordance with the so-called energy gap law for radiationless decay in the weak coupling limit ( $E_{em}$  = room-temperature emission maximum). The

relative

values of  $k_{nr}$  could be calculated quant. by using the vibrational structure of the emission spectra to evaluate the requisite Franck-Condon factors. For this application, the energy gap law equation was derived in a form with the explicit inclusion of contributions from low-frequency modes; this form was recast in terms of spectral bandshape parameters where the vibrational structure of the low-frequency modes is not resolved. The quant. correlation definitively establishes that the dominant acceptor modes (those which accept the majority of the excited-state energy) are framework stretching modes of the polypyridine ligand with  $\nu_{plcnst.} \approx 1300 \text{ cm}^{-1}$  and not C-H stretching modes as is sometimes assumed. This is corroborated by the fact that deuteration of the bpy ligand has only a small effect upon the value of  $k_{nr}$ .

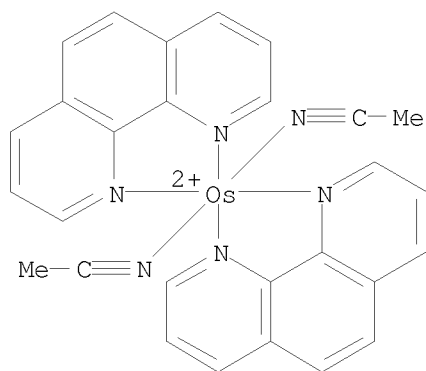
IT 80502-77-8

RL: PRP (Properties)

(luminescence of, calcn. of energy gap law to excited state decay in)

RN 80502-77-8 CAPLUS

CN Osmium(2+), bis(acetonitrile)bis(1,10-phenanthroline-N1,N10)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 284 THERE ARE 284 CAPLUS RECORDS THAT CITE THIS RECORD (289 CITINGS)

L6 ANSWER 102 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1986:101142 CAPLUS

DOCUMENT NUMBER: 104:101142

ORIGINAL REFERENCE NO.: 104:15832h,15833a

TITLE: Synthesis and study of mononuclear ruthenium(II) complexes of sterically hindering diimine chelates. Implications for the catalytic oxidation of water to molecular oxygen

AUTHOR(S): Collin, J. P.; Sauvage, Jean Pierre

CORPORATE SOURCE: Lab. Chim. Org.-Miner., Inst. Chim., Strasbourg,



F-67000, Fr.

SOURCE: Inorganic Chemistry (1986), 25(2), 135-41  
 CODEN: INOCAJ; ISSN: 0020-1669

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Ru(II)-L chelates (1:2) (L = 6,6'-dimethyl-2,2'-bipyridine and 2,9-dimethyl-1,10-phenanthroline) were prepared. Due to the steric hindrance created by the Me groups  $\alpha$  to the N atoms, the bis chelate complexes synthesized are all cis, with respect to the 2 remaining coordination sites, and cannot be photoisomerized to their trans isomers, in contrast with the equivalent complexes containing unsubstituted diimines. In addition, condensation of the mononuclear species to hydroxo- or oxo-bridged species of higher nuclearity is strictly prevented. The complexes were characterized and studied by spectroscopic methods (UV-visible, IR, and  $^1\text{H}$  and  $^{13}\text{C}$  NMR). Their electrochem. behavior was studied in relation to the oxidation of  $\text{H}_2\text{O}$  to  $\text{O}$ . The most significant results are the following: dinuclear species like  $(\text{bpy})_2(\text{H}_2\text{O})\text{RuORu}(\text{H}_2\text{O})(\text{bpy})_2^{4+}$  (bpy = 2,2'-bipyridine) are required for catalytic generation of  $\text{O}_2$  from  $\text{H}_2\text{O}$ , in agreement with previously reported data. On the other hand, the complexes presently reported display no activity toward oxidation of  $\text{H}_2\text{O}$ .

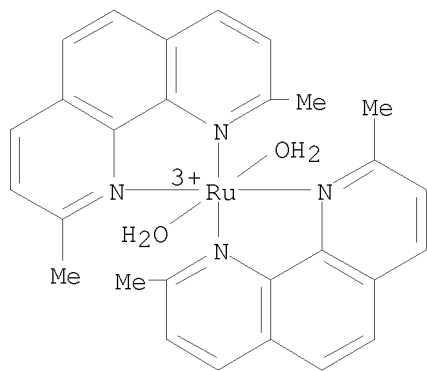
IT 99547-31-6 99547-32-7 99547-36-1  
 99547-38-3 101517-21-9 101517-22-0

RL: PRP (Properties)

(elec. potential of couple containing)

RN 99547-31-6 CAPLUS

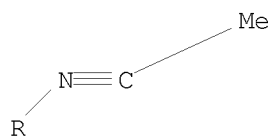
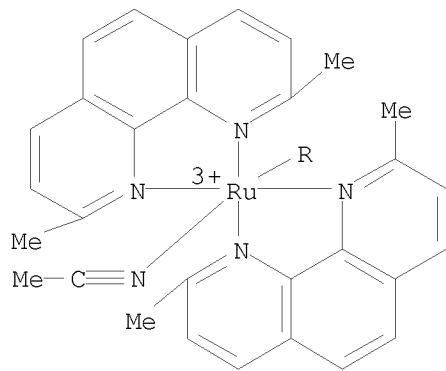
CN Ruthenium(3+), diaquabis(2,9-dimethyl-1,10-phenanthroline-N1,N10)-,  
 (OC-6-22)- (9CI) (CA INDEX NAME)



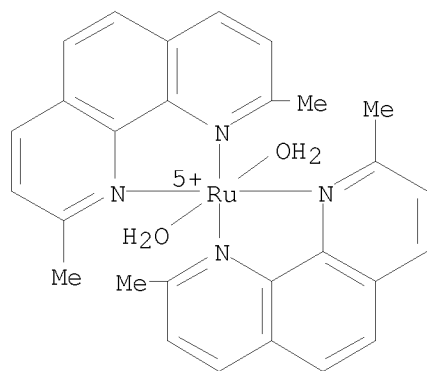
RN 99547-32-7 CAPLUS

CN Ruthenium(3+), bis(acetonitrile)bis(2,9-dimethyl-1,10-phenanthroline-N1,N10)-,  
 (OC-6-22)- (9CI) (CA INDEX NAME)

10/585,013

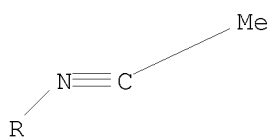
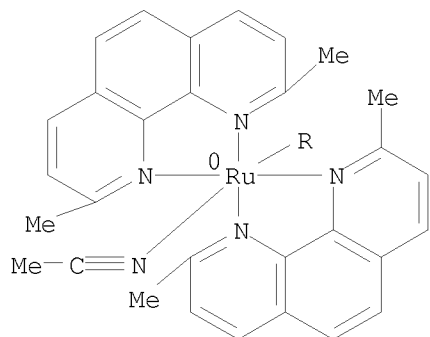


RN 99547-36-1 CAPLUS  
 CN Ruthenium(5+), diaquabis(2,9-dimethyl-1,10-phenanthroline-N1,N10)-,  
 (OC-6-22)- (9CI) (CA INDEX NAME)

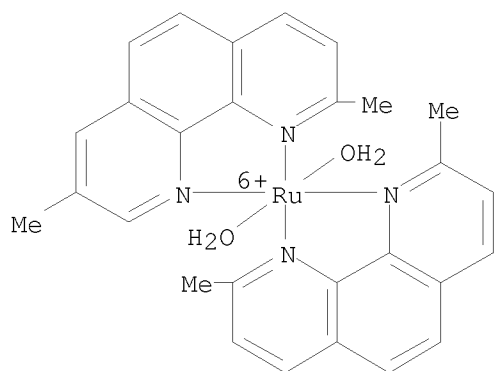


RN 99547-38-3 CAPLUS  
 CN Ruthenium, bis(acetonitrile)bis(2,9-dimethyl-1,10-phenanthroline-N1,N10)-,  
 (OC-6-22)- (9CI) (CA INDEX NAME)

10/585,013

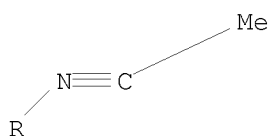
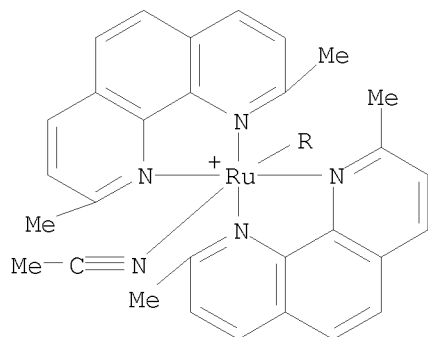


RN 101517-21-9 CAPLUS  
 CN Ruthenium(6+), diaquabis(2,9-dimethyl-1,10-phenanthroline-N1,N10)-,  
 (OC-6-22)- (9CI) (CA INDEX NAME)



RN 101517-22-0 CAPLUS  
 CN Ruthenium(1+), bis(acetonitrile)bis(2,9-dimethyl-1,10-phenanthroline-  
 N1,N10)-, (OC-6-22)- (9CI) (CA INDEX NAME)

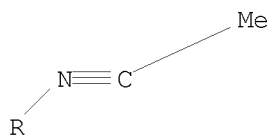
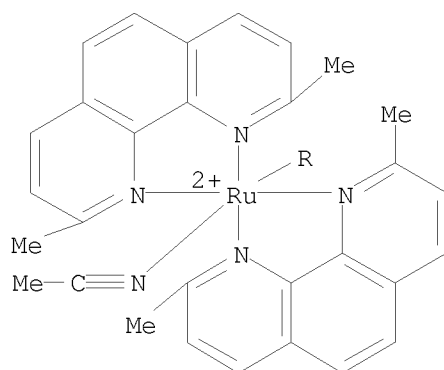
10/585,013



IT 99547-23-6P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and electrochem. of)  
RN 99547-23-6 CAPLUS  
CN Ruthenium(2+), bis(acetonitrile)bis(2,9-dimethyl-1,10-phenanthroline-  
N1,N10)-, (OC-6-22)-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 99547-22-5  
CMF C32 H30 N6 Ru  
CCI CCS

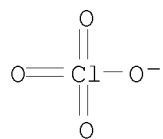


10/585,013

CM 2

CRN 14797-73-0

CMF C1 O4



IT 99547-26-9P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation, electrochem. and explosion of)

RN 99547-26-9 CAPLUS

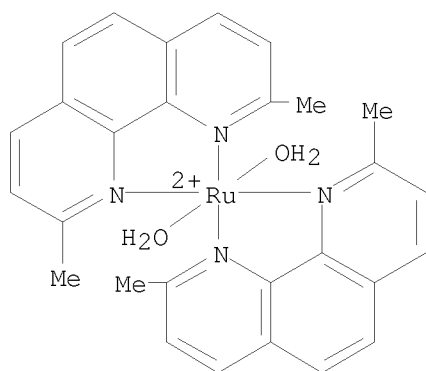
CN Ruthenium(2+), diaquabis(2,9-dimethyl-1,10-phenanthroline-N1,N10)-,  
(OC-6-22)-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 99547-25-8

CMF C28 H28 N4 O2 Ru

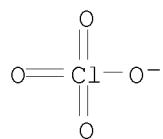
CCI CCS



CM 2

CRN 14797-73-0

CMF C1 O4

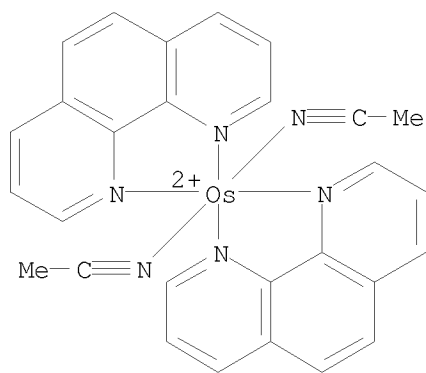


OS.CITING REF COUNT: 54 THERE ARE 54 CAPLUS RECORDS THAT CITE THIS  
RECORD (54 CITINGS)

L6 ANSWER 103 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

10/585,013

ACCESSION NUMBER: 1985:496151 CAPLUS  
DOCUMENT NUMBER: 103:96151  
ORIGINAL REFERENCE NO.: 103:15287a,15290a  
TITLE: Synthetic control of excited states. Nonchromophoric ligand variations in polypyridyl complexes of osmium(II)  
AUTHOR(S): Kober, Edward M.; Marshall, Janet L.; Dressick, Walter J.; Sullivan, B. Patrick; Caspar, Johnathan V.; Meyer, Thomas J.  
CORPORATE SOURCE: Dep. Chem., Univ. North Carolina, Chapel Hill, NC, 27514, USA  
SOURCE: Inorganic Chemistry (1985), 24(18), 2755-63  
CODEN: INOCAJ; ISSN: 0020-1669  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Metal-to-ligand charge transfer (MLCT) excited states of a series of Os(II) complexes underwent facile oxidative or reductive quenching. Excited-state redox potentials were estimated for excited state oxidative and reductive couples by both kinetic quenching and spectroscopic techniques. In a series of (phen)OsL<sub>2</sub><sup>2+</sup> (phen = 1,10-phenanthroline; L = pyridine, MeCN, phosphine, arsine) where the metal-ligand basis for the MLCT chromophore remains the same and variations are made in the nonchromophoric ligand, emission energies, excited-state redox potentials, and radiative and nonradiative rate consts. varied systematically with the potential of the ground-state Os(III/II) couple.  
IT 80502-77-8  
RL: USES (Uses)  
(photolysis and spectroscopic and excited-state properties of, excited- and ground-state redox potentials for)  
RN 80502-77-8 CAPLUS  
CN Osmium(2+), bis(acetonitrile)bis(1,10-phenanthroline-N1,N10)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 99 THERE ARE 99 CAPLUS RECORDS THAT CITE THIS RECORD (100 CITINGS)

L6 ANSWER 104 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 1985:461876 CAPLUS  
DOCUMENT NUMBER: 103:61876  
ORIGINAL REFERENCE NO.: 103:9841a,9844a  
TITLE: Photodynamics and electronic structures of metal complexes  
AUTHOR(S): Kobayashi, H.; Kaizu, Y.  
CORPORATE SOURCE: Chem. Dep., Tokyo Inst. Technol., Tokyo, 152, Japan

SOURCE: Coordination Chemistry Reviews (1985), 64, 53-64  
CODEN: CCHRAM; ISSN: 0010-8545

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The emitting excited states of  $[\text{Ru}(\text{bpy})(\text{en})_2]^{2+}$  ( $\text{bpy} = 2,2'$ -bipyridine) as well as  $[\text{Ru}(\text{bpy})_3]^{2+}$  are described as the metal-to-bipyridine charge-transfer triplet state to which a variety of the spin-allowed transitions grant their intensities as deduced by calcns. taking into account spin-orbit coupling. The structure of the lowest excited states of metalloporphyrins are discussed with relevance to the excited state lifetime. A variety of tetraphenylporphyrin metal complexes generate blue light upon red light laser excitation. The pumping up to the 2nd excited singlet is ascribed to a successive 2-photon absorption  $S_0 \rightarrow S_1 \rightarrow S_2$ .

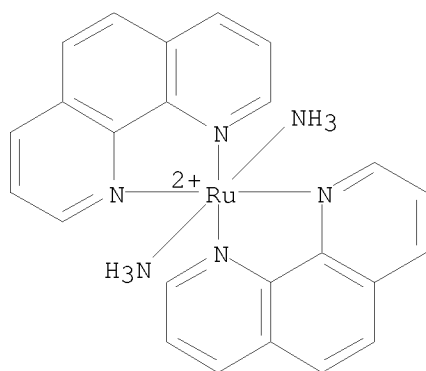
IT 69846-88-4

RL: PRP (Properties)

(electronic structure and photodynamics of)

RN 69846-88-4 CAPLUS

CN Ruthenium(2+), diamminebis(1,10-phenanthroline-N1,N10)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD (7 CITINGS)

L6 ANSWER 105 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1984:578666 CAPLUS

DOCUMENT NUMBER: 101:178666

ORIGINAL REFERENCE NO.: 101:26933a,26936a

TITLE: Solvent, ligand, and ionic charge effects on reaction entropies for simple transition-metal redox couples

AUTHOR(S): Hupp, Joseph T.; Weaver, Michael J.

CORPORATE SOURCE: Dep. Chem., Purdue Univ., West Lafayette, IN, 47907, USA

SOURCE: Inorganic Chemistry (1984), 23(22), 3639-44

CODEN: INOCAJ; ISSN: 0020-1669

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The dependence of the reaction entropies,  $\Delta S^\circ_{\text{rc}}$ , for simple  $\text{M(III)/(II)}$  redox couples, with  $\text{M} = \text{Ru}, \text{Fe}, \text{Os}, \text{or Cr}$  upon the nature of the ligands and the solvent is examined with a view towards correlating  $\Delta S^\circ_{\text{rc}}$  by using simple phys. parameters. For systems containing ammine, ethylenediamine, polypyridine, cyclopentadiene, or pseudohalide ligands,  $\Delta S^\circ_{\text{rc}}$  in a given solvent correlates well with  $(Z_{\text{ox}} - Z_{\text{red}})$ , where  $Z_{\text{ox}}$  and  $Z_{\text{red}}$  are the charge nos. of the oxidized and

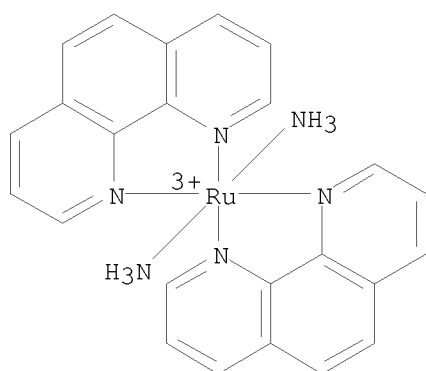
reduced forms, and with  $1/r$ , where  $r$  is the effective radius of the redox couple. This suggests that short-range ligand-solute interactions do not provide a predominant contribution to  $\Delta S^\circ_{rc}$  although this effect is probably important for aquo redox couples in water. The dependence of  $\Delta S^\circ_{rc}$  upon the solvent correlates reasonably well with the solvent acceptor number and other solvent polarity parameters. This is rationalized in terms of a contribution to  $\Delta S^\circ_{rc}$  arising from disruption of the surrounding solvent structure by the charged solute. The predictive as well as interpretative virtues of such semiempirical correlations of reaction entropies are discussed.

IT 92055-47-5

RL: PRP (Properties)  
(equivalent radii of)

RN 92055-47-5 CAPLUS

CN Ruthenium(3+), diamminebis(1,10-phenanthroline-N1,N10)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 28 THERE ARE 28 CAPLUS RECORDS THAT CITE THIS RECORD (28 CITINGS)

L6 ANSWER 106 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1983:226863 CAPLUS

DOCUMENT NUMBER: 98:226863

ORIGINAL REFERENCE NO.: 98:34299a,34302a

TITLE: Six-coordinate complexes with 1,10-phenanthroline ligands in the trans configuration. Preparation of trans-bis(1,10-phenanthroline)ruthenium(II) complexes and crystal structure of trans-bis(1,10-phenanthroline)bis(pyridine)ruthenium(II) hexafluorophosphate

AUTHOR(S): Bonneson, P.; Walsh, J. L.; Pennington, W. T.; Cordes, A. W.; Durham, B.

CORPORATE SOURCE: Dep. Chem., Lafayette Coll., Easton, PA, 18042, USA

SOURCE: Inorganic Chemistry (1983), 22(12), 1761-5

CODEN: INOCAJ; ISSN: 0020-1669

DOCUMENT TYPE: Journal

LANGUAGE: English

AB trans-[Ru(phen)<sub>2</sub>(OH<sub>2</sub>)<sub>2</sub>](PF<sub>6</sub>)<sub>2</sub> (phen = 1,10-phenanthroline) was prepared by photolysis of the cis complex in aqueous HPF<sub>6</sub> solution. Subsequent thermal substitution with appropriate ligands gave trans-[Ru(phen)<sub>2</sub>(CH<sub>3</sub>CN)(OH<sub>2</sub>)](PF<sub>6</sub>)<sub>2</sub>, trans-[Ru(phen)<sub>2</sub>(CH<sub>3</sub>CN)<sub>2</sub>](PF<sub>6</sub>)<sub>2</sub>, and trans-[Ru(phen)<sub>2</sub>(py)<sub>2</sub>](PF<sub>6</sub>)<sub>2</sub> (I) with complete retention of the stereochem. Photolysis of the trans complexes results in efficient



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rearrangement to the cis geometry. I is triclinic with space group P.hivin.1, a 10.316(1), b 10.887(2), c 8.775(1) Å,  $\alpha$  89.09(1),  $\beta$  97.66(1),  $\gamma$  118.45(2)°, Z = 1, and R = 0.047 for 1731 observed reflections. The Ru lies on a center of inversion with the 1,10-phenanthroline ligands tilted and slightly bowed away from each other, thus minimizing the  $\alpha$ -H interactions.

IT 85439-56-1P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and photoisomerization of)

RN 85439-56-1 CAPLUS

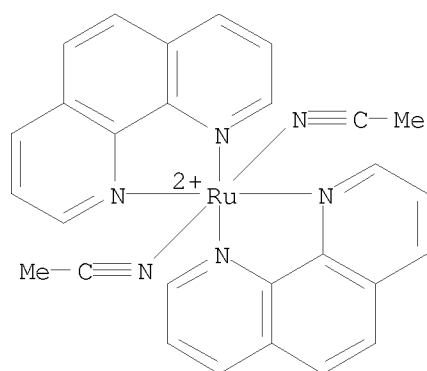
CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-  
 $\kappa$ N1, $\kappa$ N10)-, (OC-6-12)-, hexafluorophosphate(1-) (1:2) (CA  
INDEX NAME)

CM 1

CRN 85439-55-0

CMF C28 H22 N6 Ru

CCI CCS

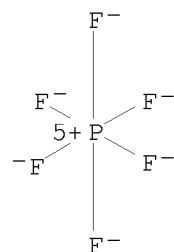


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



IT 85439-54-9P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and substitution with pyridine or acetonitrile)

RN 85439-54-9 CAPLUS

CN Ruthenium(2+), diaquabis(1,10-phenanthroline-N1,N10)-, (OC-6-12)-,

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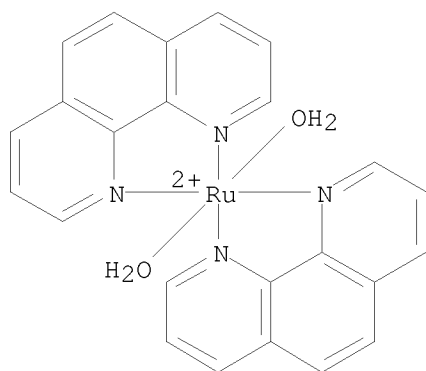
bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 85439-53-8

CMF C24 H20 N4 O2 Ru

CCI CCS

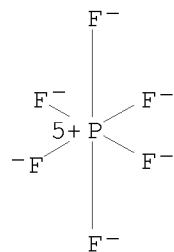


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



IT 85370-15-6P 85370-18-9P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 85370-15-6 CAPLUS

CN Ruthenium(2+), bis(acetonitrile)bis(1,10-phenanthroline-  
κN1,κN10)-, (OC-6-22)-, bis[hexafluorophosphate(1-)] (9CI)  
(CA INDEX NAME)

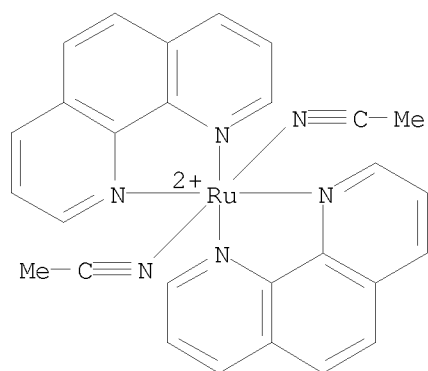
CM 1

CRN 85370-14-5

CMF C28 H22 N6 Ru

CCI CCS

10/585,013

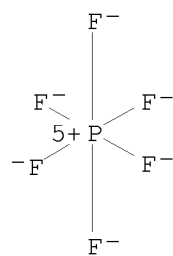


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



RN 85370-18-9 CAPLUS

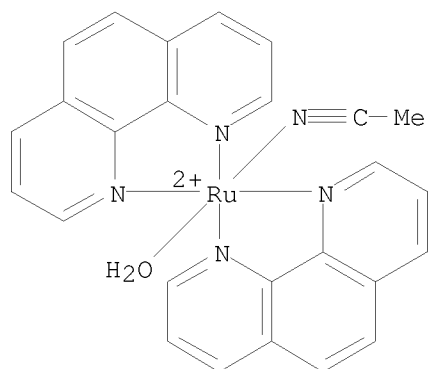
CN Ruthenium(2+), (acetonitrile)aquabis(1,10-phenanthroline-N1,N10)-,  
(OC-6-23)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 85370-17-8

CMF C26 H21 N5 O Ru

CCI CCS



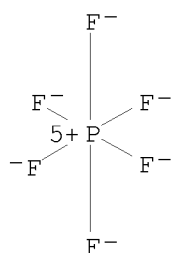
10/585,013

CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



IT 85370-16-7P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation, photoisomerization and substitution with pyridine or acetonitrile)

RN 85370-16-7 CAPLUS

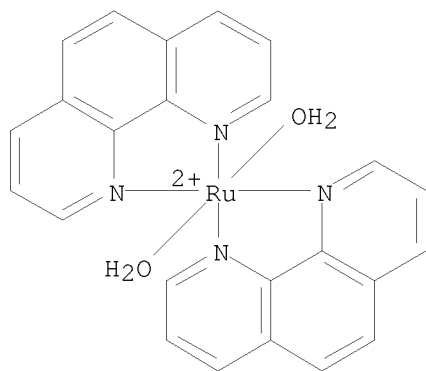
CN Ruthenium(2+), diaquabis(1,10-phenanthroline-N1,N10)-, (OC-6-22)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 47668-18-8

CMF C24 H20 N4 O2 Ru

CCI CCS

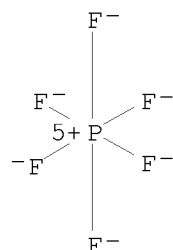


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 42 THERE ARE 42 CAPLUS RECORDS THAT CITE THIS RECORD (42 CITINGS)

L6 ANSWER 107 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1983:135095 CAPLUS

DOCUMENT NUMBER: 98:135095

ORIGINAL REFERENCE NO.: 98:20435a, 20438a

TITLE: Study of the photolysis of nitroso complexes of ruthenium in nonaqueous solutions

AUTHOR(S): Drozdova, T. I.; Popov, A. M.

CORPORATE SOURCE: USSR

SOURCE: Deposited Doc. (1981), SPSTL 924 Khp-D81, 61-7 Avail.: SPSTL

DOCUMENT TYPE: Report

LANGUAGE: Russian

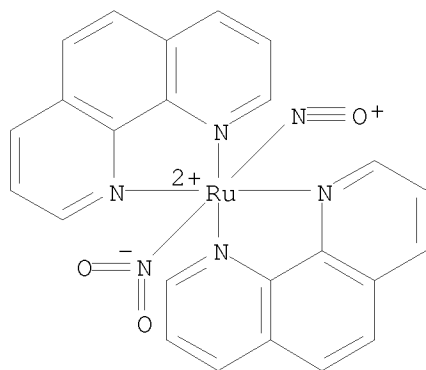
AB The effect was investigated of a simple acidic ligand X on the rate of substitution of nitroso group by a solvent mol. in photolysis of Ru complexes  $[\text{Ru}(\text{AA})_2\text{NOX}]^{2+}$  (AA = phenanthroline, bipyridine; X =  $\text{NO}_2^-$ ,  $\text{Cl}^-$ ,  $\text{Br}^-$ ) in acetonitrile solns. For all the complexes quantum efficiency of NO formation increased in X order  $\text{NO}_2^-$ ,  $\text{Br}^-$ ,  $\text{Cl}^-$  (for example for  $\text{cis-}[\text{RuNO}(\text{bipyrimidine})_2\text{X}]^{2+}$   $\phi_{\text{NO}}$  equaled 0.063, 0.082 and 0.107 for X =  $\text{NO}_2^-$ ,  $\text{Br}^-$  and  $\text{Cl}^-$  resp.). This effect is explained by ligands contribution into electronic structure of an excited state and by their steric effect.

IT 47736-19-6

RL: RCT (Reactant); RACT (Reactant or reagent)  
(photolysis of, ligand effect on)

RN 47736-19-6 CAPLUS

CN Ruthenium(2+), (nitrito-N)nitrosylbis(1,10-phenanthroline-N1,N10)-, (OC-6-33)- (9CI) (CA INDEX NAME)



10/585,013

L6 ANSWER 108 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 1982:76852 CAPLUS  
DOCUMENT NUMBER: 96:76852  
ORIGINAL REFERENCE NO.: 96:12511a,12514a  
TITLE: Application of the energy gap law to the decay of  
charge-transfer excited states  
AUTHOR(S): Caspar, Jonathan V.; Kober, Edward M.; Sullivan, B.  
Patrick; Meyer, Thomas J.  
CORPORATE SOURCE: Dep. Chem., Univ. North Carolina, Chapel Hill, NC,  
27514, USA  
SOURCE: Journal of the American Chemical Society (1982),  
104(2), 630-2  
CODEN: JACSAT; ISSN: 0002-7863  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Investigation of a new series of mono- and bis-2,2'-bipyridyl or  
1,10-phenanthroline complexes of Os(II) which exhibit long-lived,  
emitting, charge transfer excited states is reported. The compds. exhibit  
systematic changes in excited state properties, with changes in structure  
including excited state potentials, emission lifetimes, and emission maximum  
In particular, a linear dependence of  $\ln(k_{nr})$  ( $k_{nr}$  is the excited state  
non-radiative decay rate) upon the emission energy maximum is demonstrated,  
in agreement with the energy gap law.

IT 80502-78-9

RL: PRP (Properties)

(charge-transfer excited states of, luminescence and optical studies in  
relation to)

RN 80502-78-9 CAPLUS

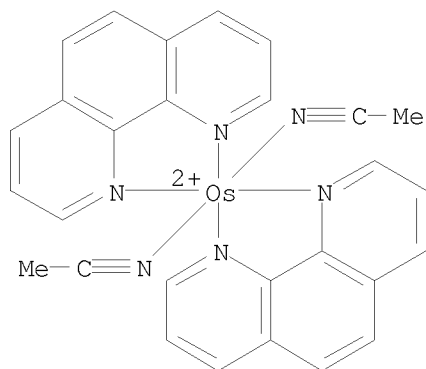
CN Osmium(2+), bis(acetonitrile)bis(1,10-phenanthroline-N1,N10)-,  
bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 80502-77-8

CMF C28 H22 N6 Os

CCI CCS

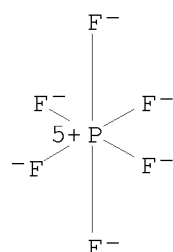


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 151 THERE ARE 151 CAPLUS RECORDS THAT CITE THIS RECORD (154 CITINGS)

L6 ANSWER 109 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1981:612849 CAPLUS

DOCUMENT NUMBER: 95:212849

ORIGINAL REFERENCE NO.: 95:35413a,35416a

TITLE: Photolysis of polypyridine nitroso complexes of ruthenium

AUTHOR(S): Drozdova, T. I.; Nikol'skii, A. B.; Popov, A. M.

CORPORATE SOURCE: USSR

SOURCE: Vestnik Leningradskogo Universiteta, Seriya 4:

Fizika, Khimiya (1981), (3), 100-3

CODEN: VLUFBI; ISSN: 0024-0826

DOCUMENT TYPE: Journal

LANGUAGE: Russian

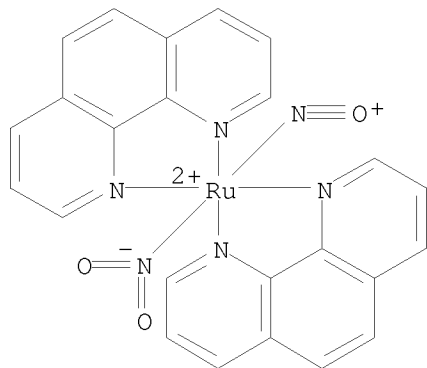
AB The photolysis of MeCN solns. of cis-Ru(bipy)2NOXn+ (bipy = 2,2'-bipyridine, X = Cl-, Br-, NO2-, n = 2; X = MeCN, py, n = 3), cis-Ru(bipy)(phen)NOX2+ and cis-Ru(phen)2NOX2+ (phen = 1,10-phenanthroline; X = Cl-, Br-, NO2-) was studied by spectrophotometry. The photosolvation of nitroso- and X-ligands was achieved by UV irradiation. The quantum yields of these processes were also determined.

IT 47736-19-6

RL: RCT (Reactant); RACT (Reactant or reagent)  
(photolysis of, in acetonitrile, quantum yield in)

RN 47736-19-6 CAPLUS

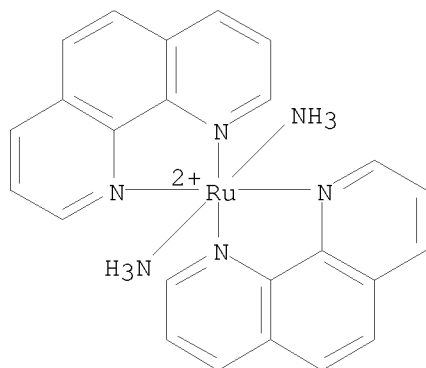
CN Ruthenium(2+), (nitrito-N)nitrosylbis(1,10-phenanthroline-N1,N10)-, (OC-6-33)- (9CI) (CA INDEX NAME)



L6 ANSWER 110 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1979:142622 CAPLUS

DOCUMENT NUMBER: 90:142622  
 ORIGINAL REFERENCE NO.: 90:22557a,22560a  
 TITLE: A comparison of the rates of electron exchange reactions of ammine complexes of ruthenium(II) and -(III) with the predictions of adiabatic, outer-sphere electron transfer models  
 AUTHOR(S): Brown, Gilbert M.; Sutin, Norman  
 CORPORATE SOURCE: Chem. Dep., Brookhaven Natl. Lab., Upton, NY, USA  
 SOURCE: Journal of the American Chemical Society (1979), 101(4), 883-92  
 CODEN: JACSAT; ISSN: 0002-7863  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB The rate consts. for the  $\text{Ru}(\text{NH}_3)_6^{3+/2+}$ ,  $\text{Ru}(\text{NH}_3)_4(\text{bpy})_2^{3+/2+}$ , and  $\text{Ru}(\text{NH}_3)_2(\text{bpy})_3^{3+/2+}$  electron exchange reactions were measured by a technique involving subtle modifications of the ligands. The rate consts. ( $\text{M}^{-1} \text{ s}^{-1}$ , medium) at  $25^\circ$  are  $3.2 \times 10^3$ ,  $0.1 \text{ M CF}_3\text{SO}_3\text{H}$ , for the  $\text{Ru}(\text{NH}_3)_6^{3+/2+}$  exchange;  $7.7 \times 10^5$ ,  $0.1 \text{ M CF}_3\text{SO}_3\text{H}$ , and  $2.2 \times 10^6$ ,  $0.1 \text{ M HClO}_4$ , for the  $\text{Ru}(\text{NH}_3)_4(\text{bpy})_2^{3+/2+}$  exchange; and  $8.4 \times 10^7$ ,  $0.1 \text{ M HClO}_4$ , for the  $\text{Ru}(\text{NH}_3)_2(\text{bpy})_3^{3+/2+}$  exchange. The rate consts. and activation parameters for the  $\text{Ru}(\text{NH}_3)_4(\text{bpy})_2^{3+/2+}$  exchange reaction were determined as a function of ionic strength ( $k = 4.1 \times 10^4 \text{ M}^{-1} \text{ s}^{-1}$ ,  $\Delta H^\ddagger = 4.0 \text{ kcal mol}^{-1}$ , and  $\Delta S^\ddagger = -24 \text{ cal deg}^{-1}$  at zero ionic strength and  $25^\circ$ ). The rate consts. determined in this work together with those for the analogous  $\text{Ru}(\text{NH}_3)_5\text{py}^{3+/2+}$  and  $\text{Ru}(\text{bpy})_3^{3+/2+}$  exchange reactions are compared with the predictions of theor. models. Good linearity was found for a plot of  $\log k_{\text{ex}}$  vs.  $1/r_{\text{hiv}}$ , where  $r_{\text{hiv}}$  is the mean separation of the Ru centers in the activated complex. The Marcus model derived on the basis of a reactive collision formulation gives better agreement with the observed rate consts. and activation parameters at zero ionic strength than the conventional ion-pair pre-equil. model. Contrary to prediction, the increase in exchange rate with increasing ionic strength is reflected primarily in a decreased enthalpy of activation.  
 IT 69846-88-4  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (redox reaction of, kinetics and equilibrium of reversible)  
 RN 69846-88-4 CAPLUS  
 CN Ruthenium(2+), diamminebis(1,10-phenanthroline-N1,N10)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 82 THERE ARE 82 CAPLUS RECORDS THAT CITE THIS RECORD (82 CITINGS)



L6 ANSWER 111 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1975:470781 CAPLUS

DOCUMENT NUMBER: 83:70781

ORIGINAL REFERENCE NO.: 83:11057a,11060a

TITLE: Chemically significant interactions between ruthenium ions in oxo-bridged complexes of ruthenium(III)

AUTHOR(S): Weaver, Tom R.; Meyer, Thomas J.; Adeyemi, S. Ajao; Brown, Gilbert M.; Eckberg, Richard P.; Hatfield, William E.; Johnson, Eugene C.; Murray, Royce W.; Untereker, Darrel

CORPORATE SOURCE: Dep. Chem., Univ. North Carolina, Chapel Hill, NC, USA

SOURCE: Journal of the American Chemical Society (1975), 97(11), 3039-48

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A series of oxo-bridged complexes of Ru(III), [(AA)2XRuORuX(AA)2]n+ (AA is 2,2'-bipyridine or 1,10-phenanthroline; X is Cl-, NO2-, or H2O), was prepared. The formulation of the complexes as  $\mu$ -oxo dimers of Ru(III) is based on a variety of expts., including elemental analyses, solution conductivity, and magnetism, and their electron transfer properties. The chemical and electronic properties of the oxo-bridged dimers are unusual when compared to related bis(2,2'-bipyridine) complexes of ruthenium. From electrochem. studies in acetonitrile, the ion [(bipy)2ClRuORuCl(bipy)2]2+ can be oxidized to +4 and mixed-valence +3 (Ru(III)-Ru(IV)) ions and reduced to the mixed-valence (Ru(II)-Ru(III)) +1 ion. The +3 ion was isolated as the salt [(bipy)2ClRuORuCl(bipy)2](PF6)3, and an ESCA study indicated that the 2 Ru ions are equivalent. The chemical, spectral, and magnetic properties of the oxo-bridged ions can be interpreted by using a qual. MO scheme, based on the assumption that strong, chemically significant interactions exist between the Ru ions through the bridging oxide ion ligand.

IT 56110-89-5P 56189-60-7P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 56110-89-5 CAPLUS

CN Ruthenium(2+), bis(nitrito-N)- $\mu$ -oxotetrakis(1,10-phenanthroline-N1,N10)di-, diperchlorate (9CI) (CA INDEX NAME)

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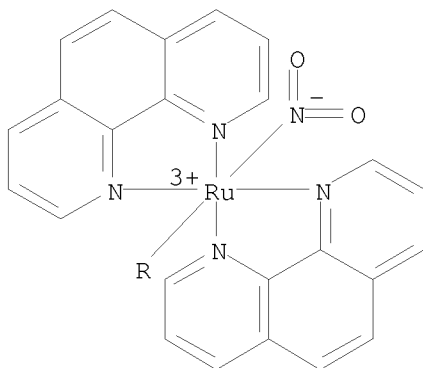
CRN 55888-83-0

CMF C48 H32 N10 O5 Ru2

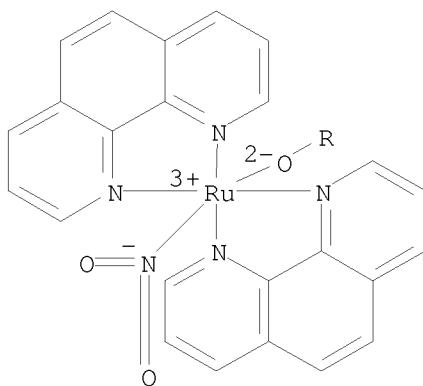
CCI CCS

10/585,013

PAGE 1-A



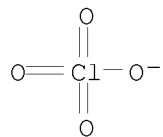
PAGE 2-A



CM 2

CRN 14797-73-0

CMF C1 O4



RN 56189-60-7 CAPLUS

CN Ruthenium(4+), diaqua- $\mu$ -oxotetrakis(1,10-phenanthroline-N1,N10)di-,  
tetrapерchlorate (9CI) (CA INDEX NAME)

CM 1

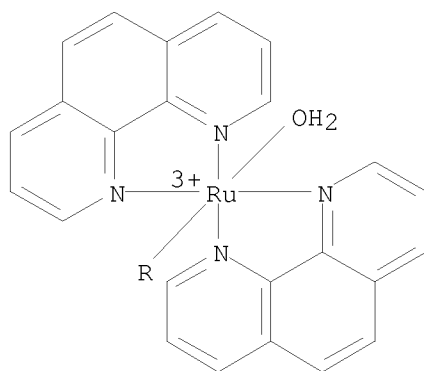
CRN 56189-59-4

CMF C48 H36 N8 O3 Ru2

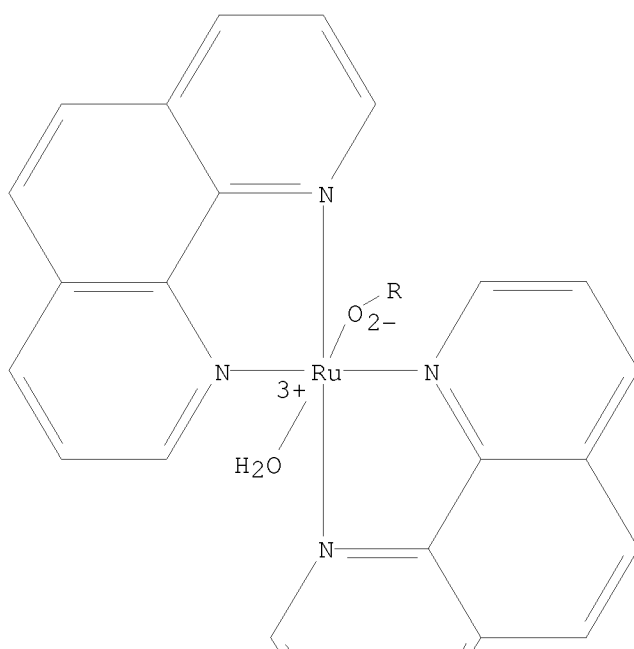
10/585,013

CCI CCS

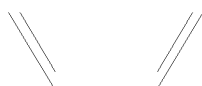
PAGE 1-A



PAGE 2-A

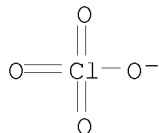


PAGE 3-A



CM 2

CRN 14797-73-0  
CMF C1 O4



OS.CITING REF COUNT: 57 THERE ARE 57 CAPLUS RECORDS THAT CITE THIS RECORD (58 CITINGS)

L6 ANSWER 112 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 1975:164318 CAPLUS  
DOCUMENT NUMBER: 82:164318  
ORIGINAL REFERENCE NO.: 82:26201a,26204a  
TITLE: Polymeric, mixed-valence transition metal compounds  
AUTHOR(S): Brown, Gilbert M.; Callahan, Robert W.; Johnson, Eugene C.; Meyer, Thomas J.; Weaver, Tom R.  
CORPORATE SOURCE: Univ. North Carolina, Chapel Hill, NC, USA  
SOURCE: ACS Symposium Series (1974), 5(Extended Interact. Met. Ions Transition Met. Complexes, Symp.), 66-75  
CODEN: ACSMC8; ISSN: 0097-6156  
DOCUMENT TYPE: Journal  
LANGUAGE: English

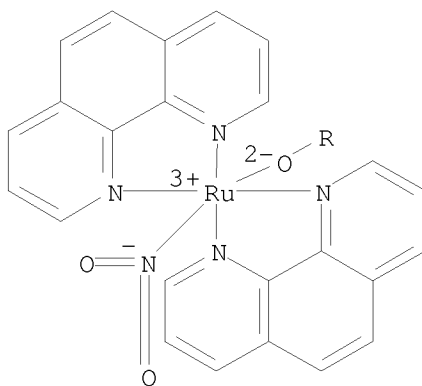
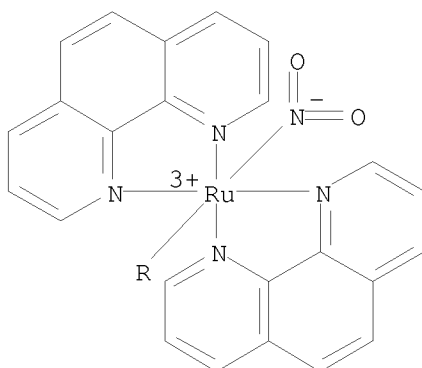
AB The unusual chemical and phys. properties of the  $\mu$ -oxo-bridged dimers  $[\text{L}_2\text{XRuORuXL}_2]^{2+}$ , where L = 2,2'-bipyridine or 1,10-phenanthroline and X = Cl or NO<sub>2</sub>, arise because of strong interactions between the Ru ions. A qual. MO scheme is presented which explains the stability of oxidation and reduction products of the ions on the basis of loss or gain of electrons in antibonding orbitals. Weak metal-metal interactions occur in  $[(\text{NH}_3)_5\text{RuL}'\text{RuCl}(\text{bipy})_2]^{3+}$ , where bipy = 2,2'-bipyridine and L' = 4,4'-bipyridine, pyrazine, and trans-1,2-di-4-pyridylethylene, whereas when L' = 1,2-di-4-pyridylethane, no Ru-Ru interaction occurs because the bridging ligand has an interrupted  $\pi$ -system. Light-induced electron-transfer between metal centers in 1-electron oxidized forms of these unsym. complexes gives rise to intervalence transfer bands in the visible and near-ir spectra. The redox properties of polymeric Ru complexes with L' bridges and of 1,1'-polyferrocenes were also studied and weak metal-metal interactions and electron-transfer isomerism in the mixed-valence compds. were observed

IT 55888-84-1  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(metal-metal interactions and oxidation-reduction properties of)

RN 55888-84-1 CAPLUS  
CN Ruthenium(2+), bis(nitrito-N)- $\mu$ -oxotetrakis(1,10-phenanthroline-N1,N10)di-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 55888-83-0  
CMF C48 H32 N10 O5 Ru2  
CCI CCS

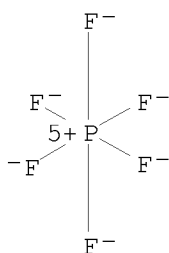


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



10/585,013

DOCUMENT NUMBER: 77:26926  
ORIGINAL REFERENCE NO.: 77:4441a,4444a  
TITLE: Effect of ligand field strength on charge-transfer luminescence of several bis(1,10-phenanthroline)ruthenium(II) chelates  
AUTHOR(S): White, Gordon M.; Ohnesorge, William E.  
CORPORATE SOURCE: Dep. Chem., Lehigh Univ., Bethlehem, PA, USA  
SOURCE: Journal of Inorganic and Nuclear Chemistry (1972), 34(4), 1453-4  
CODEN: JINCAO; ISSN: 0022-1902  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The effect of the ligand field strength of X on the intensity of the charge-transfer luminescence of Ru(phen)<sub>2</sub>X<sub>2</sub> complexes (phen = 1,10-phenanthroline) was investigated as a function of temperature. The luminescence of these chelates increases with an increase in the ligand field provided by X, and there is an increase in luminescence intensity with lowering of sample temperature. These observations are consistent with the existence and importance of the role played by the equilibrium between the charge transfer excited state configurations: ( $\pi^*t_{2g}^5$ ) and ( $\pi^*e_g^2r_{2g}^3$ ) using octahedral microsymmetry notation.

IT 37002-34-9

RL: PRP (Properties)

(charge-transfer luminescence of, ligand field strength in relation to)

RN 37002-34-9 CAPLUS

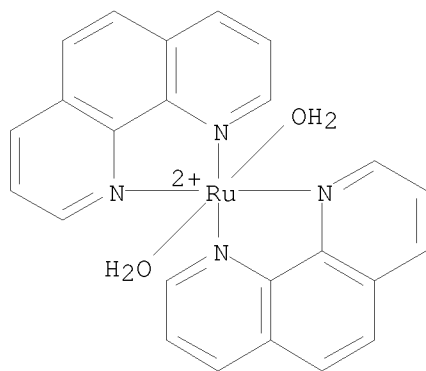
CN Ruthenium(2+), diaquabis(1,10-phenanthroline-N1,N10)-, (OC-6-22)-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 47668-18-8

CMF C24 H20 N4 O2 Ru

CCI CCS

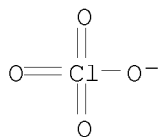


CM 2

CRN 14797-73-0

CMF Cl O4

10/585,013



L6 ANSWER 114 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1971:544440 CAPLUS

DOCUMENT NUMBER: 75:144440

ORIGINAL REFERENCE NO.: 75:22779a,22782a

TITLE: Nitrosyl-nitrite interconversion in ruthenium complexes

AUTHOR(S): Godwin, John B.; Meyer, Thomas J.

CORPORATE SOURCE: Dep. Chem., Univ. North Carolina, Chapel Hill, NC, USA

SOURCE: Inorganic Chemistry (1971), 10(10), 2150-3

CODEN: INOCAJ; ISSN: 0020-1669

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The series of nitrosyl complexes  $\text{Ru}(\text{AA})_2(\text{NO})\text{X}_2^+$  ( $\text{AA} = 2,2'$ -bipyridine, 1,10-phenanthroline;  $\text{X} = \text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{NO}_2^-$ ) reacted with  $\text{OH}^-$  to give the corresponding nitro complexes  $\text{Ru}(\text{AA})_2(\text{NO}_2)\text{X}^+$ , which were isolated and characterized. For the equilibrium  $\text{Ru}(\text{bipy})_2(\text{NO})\text{Cl}_2^+ + 2\text{OH}^- = \text{Ru}(\text{bipy})_2(\text{NO}_2)\text{Cl} + \text{H}_2\text{O}$ ,  $K_1 = (1.6 \pm 0.4) \times 10^9 \text{ M}^{-2}$  at  $25.0^\circ$  in 1.0M NaCl.

The nitro complexes can be reconverted into nitrosyl complexes by reactions with the Lewis acids  $\text{BF}_3$ ,  $\text{SnCl}_4$ , or  $\text{H}^+$ . The nitro-nitrosyl conversions are chemical reversible.  $\text{Ru}(\text{AA})_2(\text{NO})\text{py}_3^+$  was also studied.

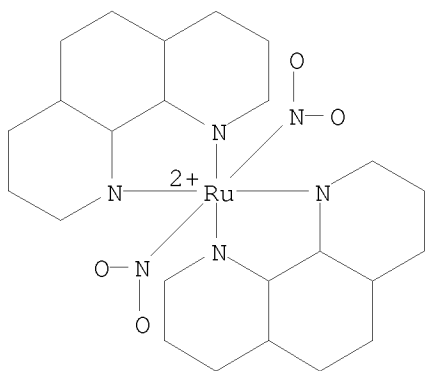
IT 34398-25-9

RL: PRP (Properties)

(oxidation-reduction equilibrium of)

RN 34398-25-9 CAPLUS

CN Ruthenium, dinitrobis(1,10-phenanthroline)- (8CI) (CA INDEX NAME)



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

OS.CITING REF COUNT: 19 THERE ARE 19 CAPLUS RECORDS THAT CITE THIS RECORD (19 CITINGS)

L6 ANSWER 115 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

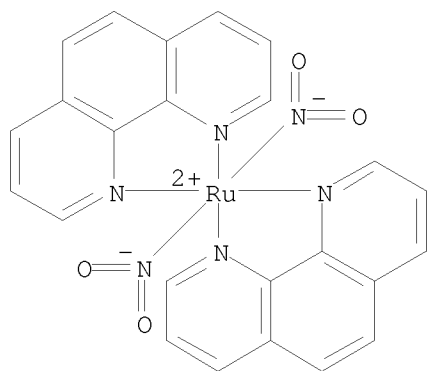
ACCESSION NUMBER: 1971:93876 CAPLUS

DOCUMENT NUMBER: 74:93876

ORIGINAL REFERENCE NO.: 74:15223a,15226a

10/585,013

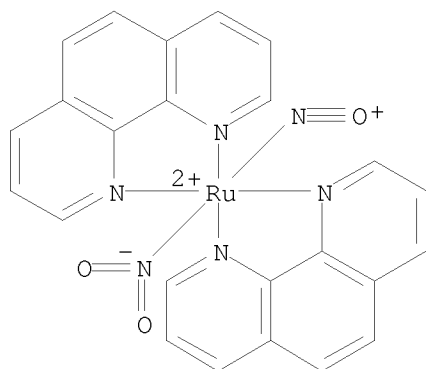
TITLE: Preparation of ruthenium nitrosyl complexes containing  
2,2'-bipyridine and 1,10-phenanthroline  
AUTHOR(S): Meyer, Thomas J.; Godwin, John B.  
CORPORATE SOURCE: Dep. Chem., Univ. North Carolina, Chapel Hill, NC, USA  
SOURCE: Inorganic Chemistry (1971), 10(3), 471-4  
CODEN: INOCAJ; ISSN: 0020-1669  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Two types of reaction, conversion of coordinated nitrite to nitrosyl by  
acid and nitrosation by acidic solns. of free nitrite ion, have been used  
to prepare Ru nitrosyl complexes. The complexes prepared are of the types  
 $\text{Ru}(\text{AA})_2(\text{NO})\text{X}_2^+$  and  $\text{Ru}(\text{AA})_2(\text{NO})\text{py}_3^+$  (AA = 2,2'-bipyridine or  
1,10-phenanthroline; X = Cl, Br, or NO<sub>2</sub>; py = pyridine). The preps. and  
some chemical and phys. properties of the complexes are presented and  
discussed.  
IT 31298-49-4P 31450-89-2P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)  
RN 31298-49-4 CAPLUS  
CN Ruthenium, bis(nitrito-N)(1,10-phenanthroline-N1,N10)-, (OC-6-22)- (9CI)  
(CA INDEX NAME)



RN 31450-89-2 CAPLUS  
CN Ruthenium(2+), nitronitrosylbis(1,10-phenanthroline-N1,N10)-, (OC-6-33)-,  
bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)  
CM 1  
CRN 47736-19-6  
CMF C24 H16 N6 O3 Ru  
CCI CCS



10/585,013

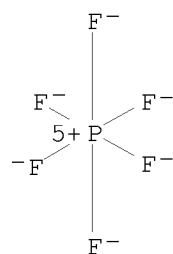


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD  
(2 CITINGS)

L6 ANSWER 116 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 1964:461140 CAPLUS  
DOCUMENT NUMBER: 61:61140  
ORIGINAL REFERENCE NO.: 61:10541h,10542a-d  
TITLE: Metal complexes of 1,10-phenanthrolines or bipyridines  
as drugs  
PATENT ASSIGNEE(S): Australian National University  
SOURCE: 17 pp.  
DOCUMENT TYPE: Patent  
LANGUAGE: Unavailable  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 956242		19640422	GB 1961-2918	19610125
PRIORITY APPLN. INFO.:			AU	19600126

AB Complexes of Fe(III) and of Os and Ru in the bi- and trivalent states with  
derivs. of 1,10-phenanthroline and of 2,2'-bipyridine are prepared and  
tested for bacteriostatic and fungistatic effectiveness. Thus,  
4,7-dimethyl-1,10-phenanthroline  
tetrachloro(4,7-dimethyl-1,10-phenanthroline) ruthenate (III),

(C<sub>14</sub>H<sub>13</sub>N<sub>2</sub>) + [Ru(C<sub>14</sub>H<sub>12</sub>N<sub>2</sub>)Cl<sub>4</sub>]<sup>-</sup>, was prepared by adding 4.52 g. 4,7-dimethyl-1,10-phenanthroline monohydrate to a solution of 3.75 g. K pentachloroaquoruthenate (III) in 40 mL. of 0.50N HCl, shaking vigorously, and heating rapidly to 80°. The brown crystals were washed with water and alc., and air-dried. Similarly prepared were: NH<sub>4</sub> tetrachloro(5,6-dimethyl-1,10-phenanthroline) ruthenate(III); bipyridinium tetrachloro(5-methyl-1,10-phenanthroline) osmate (III); 3,5,6,8-tetramethyl-1,10-phenanthrolinebipyridinebis(thiourea)ruthenium(II) chloride, [Ru(C<sub>16</sub>H<sub>16</sub>N<sub>2</sub>)(C<sub>5</sub>H<sub>5</sub>N)<sub>2</sub>(CS(NH<sub>2</sub>)<sub>2</sub>)<sub>2</sub>]Cl<sub>2</sub>; trichloromonoaquo-(4,4'-dimethyl-1,10-phenanthroline)ruthenium; tetrakis(α-picoline)(5,6-dimethyl-1,10-phenanthroline)osmium(II) chloride, [Os(C<sub>14</sub>H<sub>12</sub>N<sub>2</sub>)(C<sub>6</sub>H<sub>7</sub>N)<sub>4</sub>]Cl<sub>2</sub>.2H<sub>2</sub>O; dichlorobis(5,5'-diethylbipyridine)ruthenium-(II); chloroaquobis(4,7-diphenyl-1,10-phenanthroline)ruthenium(II) nitrate; diaquobis(4,7-diphenyl-1,10-phenanthroline)ruthenium(II) sulfate; chloro-(2,2',2''-terpy)-5,5'-diethylbipyridineruthenium(II) perchlorate; dipyridinebis(3,5,6,8-tetramethyl-1,10-phenanthroline)ruthenium(II) iodide; dichlorobis(4,4'-dimethyl-1,10-phenanthroline)osmium(II); acetylacetonebis(4,4'-diethylbipyridine)ruthenium(II) chloride; glycinobis(1,10-phenanthroline)ruthenium(II) perchlorate; 4,4'-dimethyl-5,5'-diethylbipyridinebis(4,7-diphenyl-1,10-phenanthroline)ruthenium(II) chloride; 3,4,7,8-tetramethyl-1,10-phenanthroline tetrachloro(3,4,7,8-tetramethyl-1,10-phenanthroline)-ruthenate(III), [C<sub>16</sub>H<sub>17</sub>N<sub>2</sub>][Ru(III)Cl<sub>4</sub>(C<sub>16</sub>H<sub>16</sub>N<sub>2</sub>)]; dichlorobis(3,4,7,8-tetramethyl-1,10-phenanthroline)ruthenium(II); acetylacetonebis(3,4,7,8 - tetra-Me - 1,10 - phenanthroline)ruthenium(II) chloride; tetrakis(5-methyl-1,10-phenanthrolinediol)iron(III) sulfate; and tetrakis(3,4,7,8-tetramethyl-1,10-phenanthrolinediol)iron(III) sulfate. Bacteriostatic and fungi-static tests were carried out with some complexes on Staphylococcus aureus (Oxford strain), Streptococcus pyogenes (Group A), Clostridium welchii, Escherichia coli, Proteus vulgaris, and Candida albicans (liquid medium). Complexes were tested for therapeutic value on acute and chronic staphylococcal and streptococcal bovine mastitis, for plant fungicidal value on Venturia inaequalis and Phytophthora infestans, for inhibition of influenza virus infectivity on chick chorioallantoic membranes, and for therapeutic value as anthelmintic agents in infestation of Syphacia obvelata in mice.

IT 108324-03-4

(Derived from data in the 7th Collective Formula Index (1962-1966))

RN 108324-03-4 CAPLUS

CN Diaquobis(4,7-diphenyl-1,10-phenanthroline)ruthenium sulfate (7CI) (CA INDEX NAME)

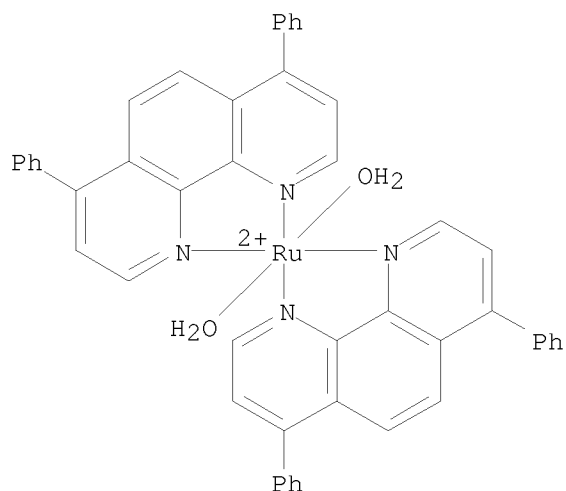
CM 1

CRN 108324-02-3

CMF C48 H36 N4 O2 Ru

CCI CCS

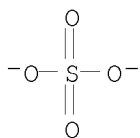
10/585,013



CM 2

CRN 14808-79-8

CMF 04 S



OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD  
(3 CITINGS)

L6 ANSWER 117 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1964:461139 CAPLUS

DOCUMENT NUMBER: 61:61139

ORIGINAL REFERENCE NO.: 61:10541f-h

TITLE: Acne remedy

INVENTOR(S): Kabi, Aktiebolag

SOURCE: 3 pp.

DOCUMENT TYPE: Patent

LANGUAGE: Unavailable

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 964444		19640722	GB 1961-40552	19611113
PRIORITY APPLN. INFO.:			SE	19601116

AB The composition described is made from 0.5-2% of vasodilators selected from  $\geq 1$  of the esters of nicotinic acid and the aliphatic amine salts of salicylic acid, a combination of  $\geq 2$  vasodilators giving superior results; a keratolytic agent, such as salicylic acid, resorcinol, or resorcinol monoacetate; a keratoplastic agent, e.g. S; optionally, anti-infective agents such as bithionol, hexachlorophene, trichlorophenol, tribromosalicylanilide, or benzalkonium chloride; and pharmaceutical

10/585,013

carriers. The esters of nicotinic acid include C1-8 alkyl esters, tetrahydrofurfuryl, benzyl, 2-butoxyethyl, guaiacyl, phenylethyl, and ethylene glycol esters. The aliphatic amine salts of salicylic acid include the alkylamine salts and the dialkylamine salts. A typical composition is Et nicotinate (I) 0.7, hexyl nicotinate (II) 0.7, bithionol (III) 0.5, diethylamine salicylate (IV) 1.8, salicylic acid (V) 2.7, precipitated S 4.5, cetomacrogol (VI) 10.0, liquid paraffin (VII) 30.0, and H<sub>2</sub>O to make 100 g. VII is heated to 70° and mixed with VI and III. IV is dissolved in boiling H<sub>2</sub>O and the solution is cooled to 70° and added to VII mixture with stirring. After cooling, I, II, S, and V are added and the mass is milled to a smooth cream.

IT 108324-03-4

(Derived from data in the 7th Collective Formula Index (1962-1966))

RN 108324-03-4 CAPLUS

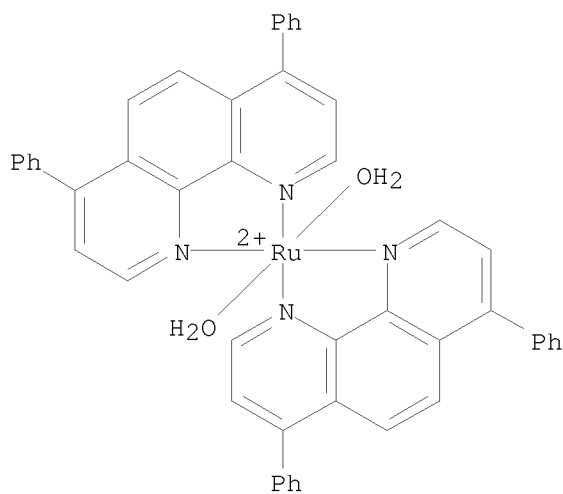
CN Diaquobis(4,7-diphenyl-1,10-phenanthroline)ruthenium sulfate (7CI) (CA INDEX NAME)

CM 1

CRN 108324-02-3

CMF C48 H36 N4 O2 Ru

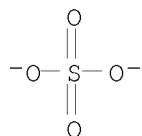
CCI CCS



CM 2

CRN 14808-79-8

CMF O4 S

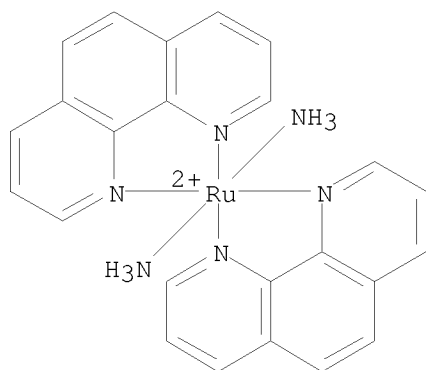


OS.CITING REF COUNT: 5

THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD  
(5 CITINGS)

10/585,013

L6 ANSWER 118 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 1963:467252 CAPLUS  
DOCUMENT NUMBER: 59:67252  
ORIGINAL REFERENCE NO.: 59:12388h,12389a  
TITLE: Mono- and bis-(2,2'-bipyridine) and  
-(1,10-phenanthroline) chelates of Ru and Os. II.  
Bischelates of bivalent and trivalent Ru  
AUTHOR(S): Dwyer, F. P.; Goodwin, H. A.; Gyarfas, E. C.  
CORPORATE SOURCE: Univ. New South Wales, Kensington, Australia  
SOURCE: Australian Journal of Chemistry (1963), 16(4), 544-8  
CODEN: AJCHAS; ISSN: 0004-9425  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable  
AB cf. CA 59, 10971a. Bis(phenanthroline)- and bis(bipyridine)Ru(II)  
chelates were prepared by pyrolysis, at 300°, of phenanthroline  
tetrachlorophenanthroline ruthenate(III) and bipyridine  
tetrachlorobipyridine ruthenate(III). In the complex [RuB2Cl2] the  
chelating base mols. (B) are firmly bound, but the Cl atoms are  
replaceable by a variety of ligands such as water, pyridine, or  
acetylacetone. The complexes are spin-paired and show no tendency to  
disproportionation to the tris complexes, under normal exptl. conditions.  
IT 106411-05-6  
(Derived from data in the 7th Collective Formula Index (1962-1966))  
RN 106411-05-6 CAPLUS  
CN Diamminebis(1,10-phenanthroline)ruthenium diiodide (7CI) (CA INDEX NAME)



● 2 I<sup>-</sup>

OS.CITING REF COUNT: 20 THERE ARE 20 CAPLUS RECORDS THAT CITE THIS  
RECORD (21 CITINGS)

L6 ANSWER 119 OF 119 CAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 1963:467251 CAPLUS  
DOCUMENT NUMBER: 59:67251  
ORIGINAL REFERENCE NO.: 59:12388f-h  
TITLE: Tetrakis(Tetrakis(trifluoromethyl)cyclopentadienone  
and some hexafluoro-2-butyne complexes of rhodium  
AUTHOR(S): Dickson, R. S.; Wilkinson, G.  
CORPORATE SOURCE: Imp. Coll., London  
SOURCE: Chemistry & Industry (London, United Kingdom) (1963),  
(34), 1432

10/585,013

CODEN: CHINAG; ISSN: 0009-3068

DOCUMENT TYPE:

Journal

LANGUAGE:

Unavailable

GI For diagram(s), see printed CA Issue.

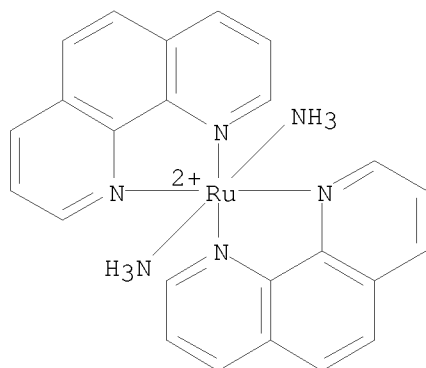
AB When  $[\text{Rh}(\text{CO})_2\text{Cl}]_2$  is heated with excess  $\text{CF}_3\text{C}(\text{O})\text{C}(\text{O})\text{CF}_3$  (I) at  $150^\circ$  under a high pressure of CO, several fluorocarbon complexes and a high yield of yellow tetrakis(trifluoromethyl)cyclopentadienone (II), m.  $44-5^\circ$ , are formed. II does not react with ketone reagents but can be used as a ligand for the preparation of metal complexes. Thus, II with Fe pentacarbonyl gives the known complex  $\text{C}_9\text{F}_{12}\text{OFe}(\text{CO})_3$ . Dicarbonyl- $\pi$ -cyclopentadienylrhodium reacts with I to give, after chromatography, approx. equal amts. of yellow II complex,  $\pi\text{-C}_5\text{H}_5\text{RhC}_9\text{F}_{12}\text{O}$ , m.  $199^\circ$ , and orange-yellow III, m.  $185^\circ$ ,  $\text{F}_{19}$  nuclear magnetic resonance 13.3, 10.2, 6.2 p.p.m. on the low-field side of  $\text{PhCF}_3$ .

IT 106411-05-6

(Derived from data in the 7th Collective Formula Index (1962-1966))

RN 106411-05-6 CAPLUS

CN Diamminebis(1,10-phenanthroline)ruthenium diiodide (7CI) (CA INDEX NAME)



● 2 I<sup>-</sup>

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
(1 CITINGS)

=> d his

(FILE 'HOME' ENTERED AT 10:38:53 ON 31 JAN 2011)

FILE 'REGISTRY' ENTERED AT 10:39:13 ON 31 JAN 2011

L1 STRUCTURE UPLOADED  
L2 50 S L1  
L3 STRUCTURE UPLOADED  
L4 11 S L3  
L5 232 S L3 FULL

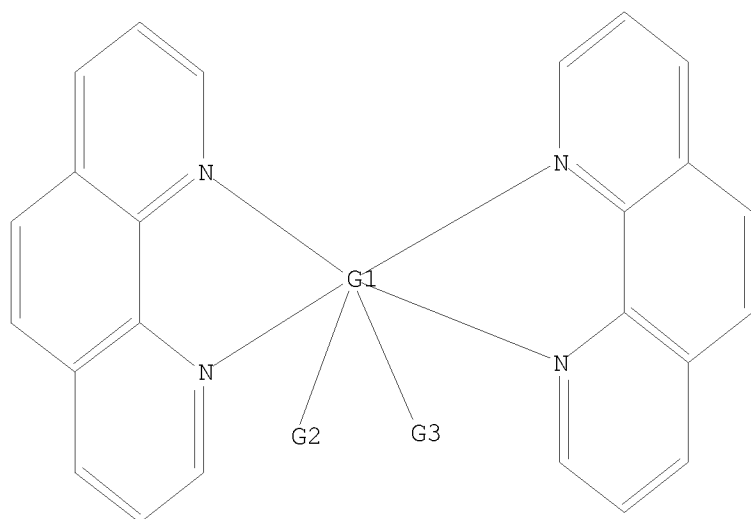
FILE 'CAPLUS' ENTERED AT 10:42:56 ON 31 JAN 2011

L6 119 S L5

=> d l3

10/585,013

L3 HAS NO ANSWERS  
L3 STR



G1 Os,Ru

G2 O,N

G3 O,N,P,CN

Structure attributes must be viewed using STN Express query preparation.

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